Chemical Week

November 8, 1952 Price 35 cents

Boom, markets, tariffs: three reasons why U. S. companies trek to Canada . . . . . p. 19

Small-lot, look-like-lithograph containers bid for private-label specialties business . . . . p. 42

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Lithium chemicals drive for tripled output as demand outruns capacity . . . . . p. 57

Profits squeezed? Take a searching look at what a cost-control program can do . . . . . p. 59

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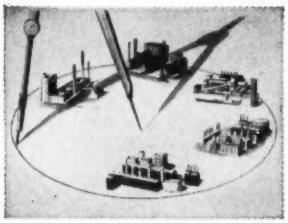

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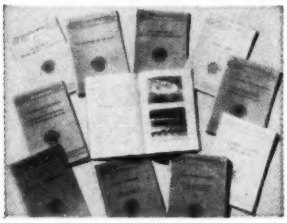

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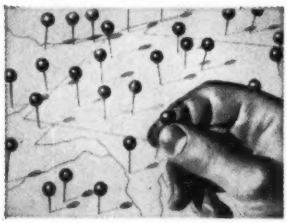

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Chemical Week

Volume 71 Number 19

November 8, 1952

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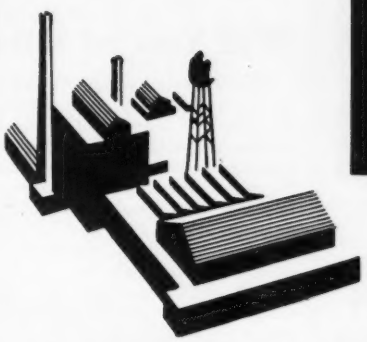

INDUSTRY selects FURFURYL ALCOHOL

Why?

Furfuryl alcohol (FA*) is a primary alcohol, but its behavior pattern is greatly modified by the furan ring. This combination results in some unusual properties which make it attractive to a number of industries.

1. SOLVENT:

FA is a powerful resin solvent and has the added ability in a number of cases to react with the resin itself thus becoming a part of the final product. For example, in the manufacturing of grinding wheels, FA is a solvent for the phenolic resin binder, and reacts with it in the curing cycle, resulting in a tough bond with minimum production of volatiles.

2. CHEMICALLY INERT RESIN:

FA is extremely reactive in the presence of acids with or without the application of external heat. When such resin is cured, acid, solvent, and alkali inert products are formed. These resins form the basis for corrosion resistant mortars, cements, reinforced linings, and molded chemical-inert equipment.

3. RING OPENING REACTIONS:

Although not yet as commercially important as the solvent and resin applications, reactions involving the FA ring offer potentially valuable routes to chain compounds such as levulinic acid.

Now is the time to write for a bulletin about FA and to become better acquainted with the properties of this industrial chemical.

*Reg. U. S. Pat. Off.

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OPINION . . . . .

Will You let Them get Away With It?

"It will get increasingly difficult for sales-loving industry . . . to silence and crush by the weight of its dollars the reforming idea behind organic farming . . . The time will come when the farmer will rid himself of the yoke imposed upon him in the form of agricultural chemicals . . .

"There is indeed lots of worry ahead for the chemical industry so far as it haughtily meddles with living things . . . chemistry in agriculture does not belong there . . . The more outrageously this commercialized science will continue to enforce itself upon the world of living beings, the sonner it will exterminate itself . . .

"The counterforce is far from a one-man crusade . . . Big Industry may be assured that the number of repudiators is fast-growing and once they get better organized they will really tone up . . . It is largely a question of how fast how many people will awaken to the truth . . ."

These damning and threatening comments we published in these columns last week as the opinion of one of our readers (whose name we voluntarily withheld).

He styles himself, somewhat paradoxically, as an "agricultural chemist" and is, obviously, a devotee of the organic farming cult, all of whose members seem to be dedicated to the abolition of all agricultural chemicals.

Perhaps you regarded these vitriolic views as the product of one mind, as representing an isolated, irrational, abnormal point of view. If they were, they might properly be shunned and ignored. Irrational, in our opinion, they are; isolated, they aren't. And because they aren't, we might well take heed before these propagandists poison the public mind and undermine the future of a major segment of our industry. For that, indeed, is their objective and the mission they endow with unbounded zeal.

Let's appraise for a moment (1) the contentions of these organic farmers and down-with-chemicals zealots; (2) just how widespread are their activities; and (3) the facts of the case.

Their main assertions:

- All chemicals are unnecessary for crop production
- The use of "natural" organic fertilizer (which yields humus) is all-sufficient for good crop yields
- Crops grown on chemically-fertilized soils are lower in food value (e.g., vitamins) than humus-derived
- Plants grown on "natural" soil are insect-resistant—require no chemical sprayings
- Plants grown on "natural" soil are disease-resistant
- Chemical fertilizers kill earthworms and micro-organisms

Those are the elements of the humus-hucksters' theme—played with variations and overtones to suit the occasion. And played they are, with all the stops out, and whenever an opportunity arises to propagandize.

The main trumpeter and prophet is the magazine *Organic Gardening*, which is published in Emmaus, Pa., and describes its editorial philosophy as: "Gardening magazine opposed to chemicals. Uses articles on all phases of horticulture and soil conservation, preferably based on personal experience." Thus, in comparative candor, the magazine characterizes itself. And with some vigor it carries on its back-to-nature campaigning by publishing persuasively written anti-chemical pieces.

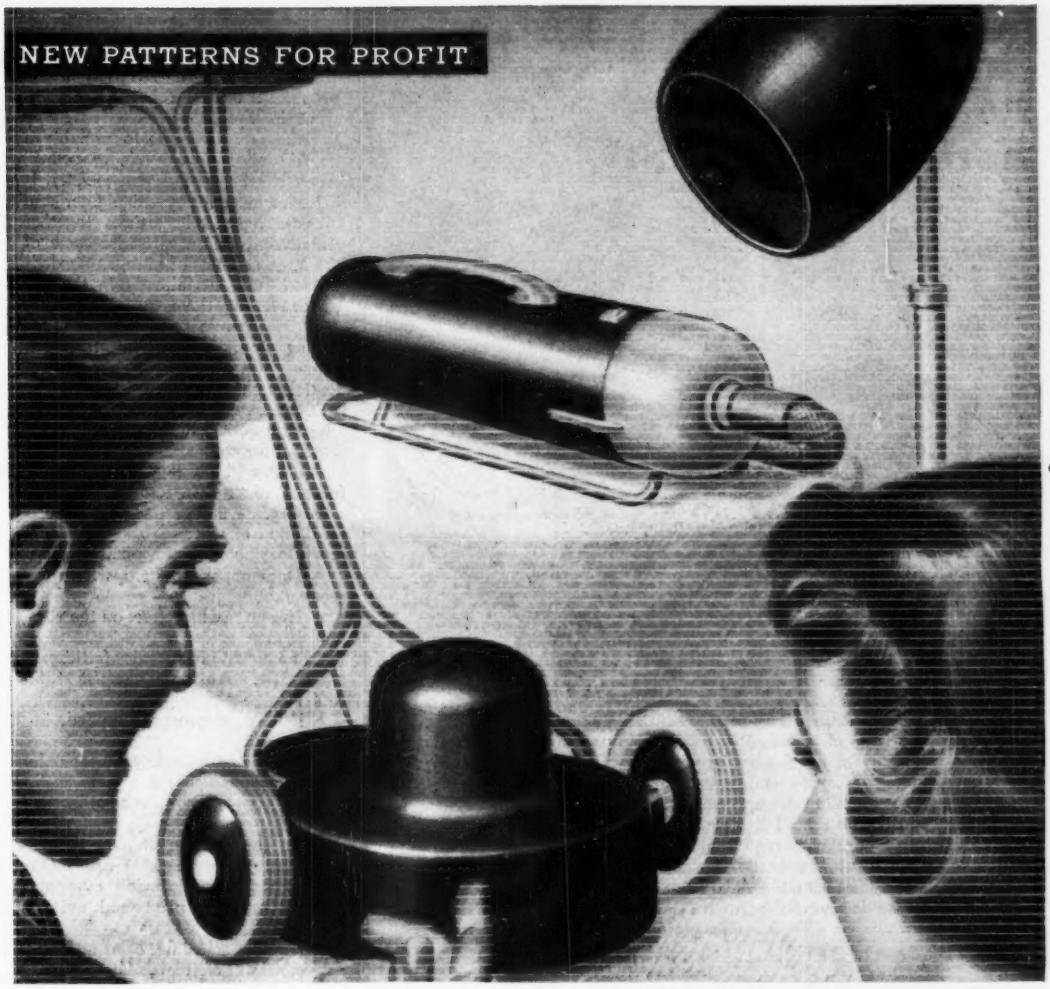
But perhaps more diligent than this journal are the disciples who drink, eagerly, from this "fountain of knowledge." They rise in ire at the mere mention of the horrendous word "chemical" and bombast the press—especially newspapers—with chemicals-be-damned diatribes. We, for instance, receive scores of such violent letters every year. But we also see—via our network of regional editors and correspondents and through the cooperation of interested readers—hundreds which are published in farm journals, newspapers and popular, mass-circulation magazines both here and abroad. All the dissertations hew mighty close to the "line."

The cult has, too, some influential, big-name members. The distinguished novelist (and gentleman farmer) Louis Bromfield is one. He has voiced anti-chemical views in his syndicated column; he appeared before the Delaney Committee and divested himself of some rugged but well-phrased observations.

And so it goes. Most of the expressions of the organic farming proponets are enveloped in an aura of plausibility. Millions of laymen, we suspect, have been "sold" on the proposition that nature is pure and bountiful and that synthetic chemicals are evil, poisonous usurpers.

But what are the facts? Does humus bestow all the bounties that its advocates assert? Do chemicals wreak all the havoc attributed to them?

The controversy generated by the



Can what's happening to appliances help your business, too?

Have you looked at appliances lately . . . in shop windows or advertisements? Then you may have noticed an important change. Washing machine tubs, refrigerator liners, vacuum tanks and other *large* parts of appliances are now being molded from a super-tough plastic supported by glass fibers. It's called polyester-glass fiber laminate.

This material withstands heat, abrasion, weathering . . . requires no surface finishing . . . it's strong and light and doesn't dent. It can be molded into colorful products from low-cost molds using little or no heat and low pressure.

With this material, manufacturers have accomplished production magic. They use it for tote boxes and tank trucks. They have produced strong, lightweight, chemically resistant pipe. They mold sleek 35-ft. sailboats in one operation.

Investigate it for *your* products.

Find out how dozens of fast-moving developments based on styrene monomer can serve *your* business. Write Monsanto Chemical Company, Department A, Texas Division, Texas City, Texas.

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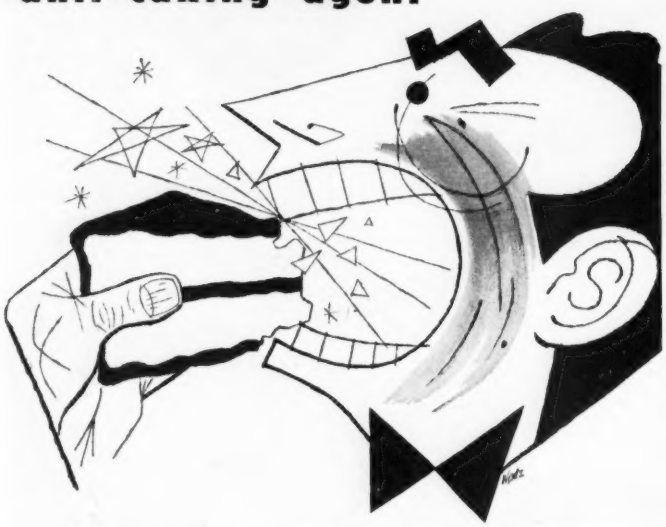
Shoes and Luggage	Construction Materials
Wall and Floor Tile	Fixtures
Boats	Coatings for Paper and Textiles
Rubber-Based Paints	Automobile and Truck Bodies
Conveying Equipment	Oil Paints
Adhesives	Baking Enamels

MONSANTO
CHEMICALS—PLASTICS

SERVING INDUSTRY...WHICH SERVES MANKIND

Furafil*—

anti-caking agent



Fertilizer manufacturers have found that the addition of 100 pounds of Furafil per ton of mixed goods helps prevent caking and preserves good drillability in the finished product. Several hundred thousand tons of Furafil have been used by the fertilizer industry indicating the acceptance of Furafil in this application.

When quebracho extract is ground for use as a viscosity reducing agent in oil well drilling muds, the addition of small amounts of Furafil results in an easy-flowing product which does not cake. This is of particular value during periods of high humidity.

Perhaps you have a caking problem in which Furafil can be of help. The following table gives Furafil's physical properties. Check them against your requirements.

Properties:

SCREEN ANALYSIS	FURAFIL M	FURAFIL C
On 35 mesh	41%	29%
On 65 mesh	25%	43%
On 100 mesh	11%	13%
Thru 100 mesh	23%	15%

Color: Dark brown • Bulk Density: 30-35 lbs./cu. ft.

Furafil is also used as a burn-out material with foundry sands to reduce the distortion of molds when castings are poured. A fine ground grade is sold in the plywood industry as an extender for phenolic glues used in the manufacture of Douglas Fir plywood.

Furafil is available throughout the year. Write for samples and additional information about its properties.

*Reg. U.S. Pat. Off.

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OPINION . . . . . .

organic enthusiasts has forced the U. S. Department of Agriculture to prepare a factual rebuttal. This is what it says:

"Humus . . . tends to promote a proper soil structure (*as, of course, do chemical soil conditioners*—ED.). It helps make a heavy soil lighter and to hold light soil particles together and lessen erosion; provides *some* of the large amounts of nitrogen needed; releases nutrients already in the soil by converting them to soluble compounds; permits growth and functioning of micro-organisms; furnishes a *small** quantity of all elements essential to plant growth.

"Generally, however, it is not possible or practical to substitute organic material for commercial fertilizer."

And this USDA says in specific refutation of organic farmers' claims:

- Organic matter does not reduce infestation of weeds
- Does not diminish plant diseases
- Does not protect crops from insect attack
- Has no marked effect on the vitamin content of crops

Commercial chemical fertilizers, says USDA's senior soil chemist M. S. Anderson:

- Do not, if properly applied, injure the soil
- Do provide essential, soluble plant nutrients
- Do not poison vegetables or other plant growth
- Do not destroy animal life—earthworms, bacteria—in the soil (On the contrary, they provide nutrients essential to both plant and animal life.)

The coldly scientific, calm and objective views of real soil scientists stand in stark contrast to the emotional outpourings of those clinging to the organic farming bias. Facts they are, and none of the humus hurrahers can discount them—with facts, that is, rather than with strident half-truths.

We must, nonetheless, face up to this: The disciples of organic farming are waging a vocal battle, and some there are who will listen and believe. Within the next few months, we ven-

* A 100-bu. corn crop requires about 400 lbs. of mineral nutrients, an acre of coniferous trees about 87 lbs. per year. It is not suprising, therefore, that in changing from forest land to crop acreage that the soil supply of nutrients must be supplemented.—ED.

CW welcomes expressions of opinion from readers. The only requirements: that they be pertinent, as brief as possible.

Address all correspondence to: W. A. Jordan, Chemical Week, 330 W. 42nd St., New York 36, N.Y.

PRODUCT CONTROL THROUGH INFRARED ANALYSIS

Number 7 *of a Series of Data Sheets for Better Process Control from The Perkin-Elmer Corporation, Manufacturers of Infrared Spectrometers, Flame Photometers and Electro-optical Instruments.*

PROBLEM:

Determining oil and phenols in effluent water.

DEVELOPED BY:

The Atlantic Refining Company, Philadelphia, Pennsylvania.

SOLUTION:

Infrared analysis. Method is based on bromination of the phenols, extraction of the bromides from water with carbon tetrachloride, and measurement of optical density at 2.84 microns (for phenols) and 3.40 microns (for oils).

INSTRUMENTATION:

Perkin-Elmer Model 12-A Infrared Spectrometer, LiF Prism, 50 mm glass cell with quartz windows.

DISCUSSION:

The petroleum industry has long been concerned with elimination of both hydrocarbon oil and phenols from its effluent waters. A number of analytical methods are now in use but none has both sensitivity and accuracy desired for future pollution abatement programs.

Classical methods for determination of oil in water are limited to concentrations above 1 ppm.

Infrared analysis:

Sensitive to 0.1 ppm of oil and 10 parts, or less, per billion of phenol, (see tables) with an accuracy better than that obtainable by existing methods—not affected by volatility of material being determined.

REFERENCE:

"Infrared Spectrophotometric Determination of Oil and Phenols in Water." R. G. Simard, Ichiro Hasegawa, William Bandaruk and C. E. Headington, Anal. Chem. 23, 10 (1951).

Sensitivity of Phenol Method

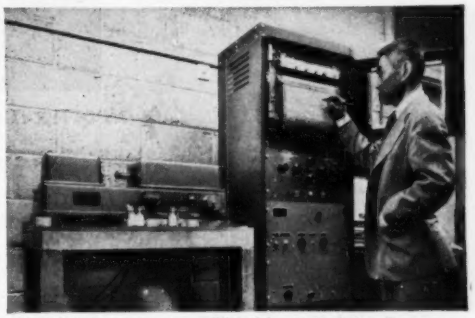
Compound	Phenol Present PPM	Phenol Found PPM	Recovery %
Phenol[a]	0.01	0.008	80
o-Cresol[b]	0.01	0.006	60
	0.012	0.016	133
	0.031	0.034	110
	0.049	0.054	111
	0.061	0.078	128

[a] Phenol calibration used.
[b] o-Cresol calibration used.

Sensitivity of Oil Determination[a]

Waste Oil Added, PPM	Waste Oil Determined, PPM
1.2	1.1
1.2	1.0
0.1	0.1
0.1	0.1
0.0	0.04

[a] Water extracted with 10 ml of CCl_4 per liter.



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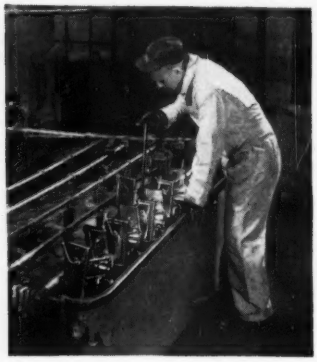

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Hydrochloric	38%	50° C	No effect	None	None
Hydrofluoric	50%	Room	No effect	3.4%	2.0%
Nitric	40%	50° C	No effect	None	None
Bases					
Sodium Hydroxide	50%	50° C	No effect	4.5%	6.6%
Ammonium Hydroxide	28%	Room	No effect	None	None
Oxidizing Agents					
Hydrogen Peroxide	30%	Room	Slight bleaching	None	None
Sodium Hypochlorite	Commercial	50° C	No effect	None	None
Solvents					
Ethyl Alcohol	100%	50° C	No effect	None	None
Perchlorethylene	100%	50° C	No effect	None	None
Deodorized Kerosene	100%	50° C	No effect	None	None
Toluene	100%	50° C	Slight bleaching	3.4%	4.4%

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OPINION . . . . . .

ture to predict, their propagandizing will be stepped up. Chemical soil conditioners have now entered the arena to further threaten, in some respects, their long-loved and revered humus. The excoriations of chemicals will, without a doubt, become more numerous and more vilifying.

If we choose, we may sit quietly by and pay no heed to their castigations; we may let the public come to regard chemicals as sinister and chemical companies as devilish organizations grasping for profits without regard for, or with ruthless indifference to, the public welfare. That we may do, and through our apathy, the actions of a militant minority of noisy men may spawn legislation which will cripple and condemn us.

Or we can exploit our all-powerful weapon: the truth. It is, in our opinion, the responsibility of every chemical executive to see that his employees and his customers are informed of the positive contributions our industry has made to agriculture. And, whenever and wherever possible, that he also tell the public what we have done, what we are doing, what our research portends.

—**W. Alec Jordan,** *Editor.*

Rhyme with Reason

To The Editor: Re your news article
on Undercoatings (Sept. 13) . . .
At Chem Week Witco should be sore,
'Cause you didn't mention Witcote 4,
But for efficient car protection
Witcote still gives satisfaction,
To be thus ignored cuts to the core.

W. F. Twombly
Vice President
Witco Chemical Co.
New York, N. Y.

MEETINGS . .

Atmospheric Pollution Control, symposium, Case Institute of Technology, Cleveland, O., Nov. 10-12.

American Petroleum Institute, 32nd Annual meeting, Conrad Hilton Hotel and Palmer House, Chicago, Ill., Nov. 10-13.

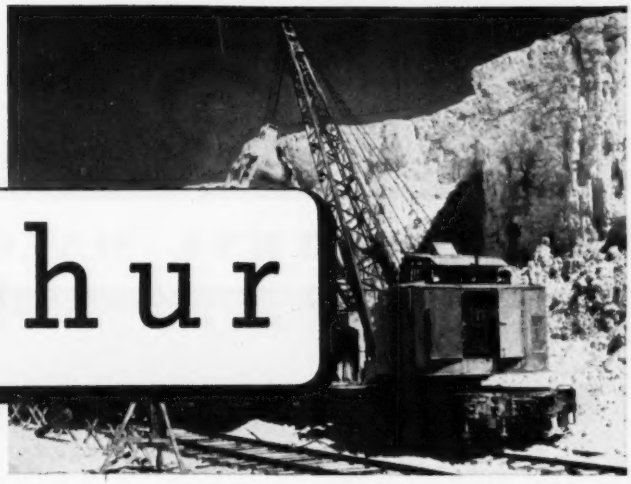
Society of Plastics Ind., second regional meeting, New York, N.Y., Nov. 13.

American Standards Assn., 34th annual meeting, Waldorf-Astoria Hotel, New York, N.Y., Nov. 19.

National Fertilizer Assn., annual fall convention, Roney Plaza Hotel, Miami Beach, Fla., Nov. 19-21.

Manufacturing Chemists' Assn., second semi-annual meeting and conference, Hotel Statler, New York, N.Y., Nov. 25.

American Institute of Chem. Engrs., annual meeting, Cleveland Hotel, Cleveland, O., Dec. 7-10.

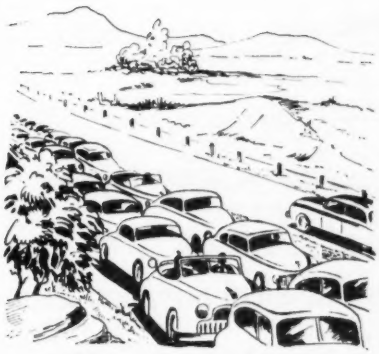


Sulphur

Thousands of tons mined daily, but where does it all go?

Did you ever have the misfortune on a steaming, sticky, sultry day to sit it out on a crowded parkway, bumper to bumper, waiting for traffic to clear? No doubt your thoughts were plenty sulphurous but probably not along the lines we have in mind.

We're thinking of the mineral Sulphur and its link with the automobile. Each car accounts for a substantial poundage of Sulphur, some estimates put it at around 25 pounds for the average car. Give or take 5 pounds, it shows that a tremendous tonnage of Sulphur is needed each year to put cars, buses and trucks on the road ready to operate. And don't forget the tire and battery replacements going on every day.



Sulphur enters the automobile picture through the tires, steel sheets, plated and plastic fittings, glass, battery acid and parts, copper tubing and wiring . . . all of which call for the use of Sulphur or its compounds in connection with their manufacture.

Can you wonder that Sulphur goes into industry just about as fast as the sulphur producers of the Gulf Coast Region can get it above ground and cooled preparatory to shipment?

Texas Gulf Sulphur Co.

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Spindletop, Texas • Worland, Wyoming

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KAY FRIES SPECIFICATIONS

purity	**99.0% min.**
nitrogen	**0.025% max.**
acidity	**0.1% max. as malonic acid**

A new high purity DIETHYL MALONATE has been developed by the Kay Fries laboratories and is available in commercial quantities.

DIETHYL MALONATE is an old stand-by of the organic chemist, however, through this improved quality, development of new uses will be aided, and the operation of established processes made more efficient.

An active methylene group in a dicarboxylic acid ester is of particular interest and has been responsible for much of its present use in the manufacture of pharmaceuticals, including barbiturates and anti-malarials.

TYPICAL REACTIONS

$$2CH_2(COOEt)_2 + 3RX \xrightarrow{Na} CHR(COOEt)_2 + CRR(COOEt)_2 + 3HX$$

halogen cd. → mono- and di- substituted malonic esters

$$CH_2(COOEt)_2 + HC(OR)_3 \xrightarrow{\text{catalyst}} ROCH = C(COOEt)_2 + 2C_2H_5OH$$

trialkyl orthoformate → alkoxy-methylene malonic ester

$$CH_2(COOEt)_2 + RRCO \xrightarrow{\text{catalyst}} RRC = C(COOEt)_2 + H_2O$$

aldehyde or ketone → disubstituted methylene-malonic ester

$$CH_2(COOEt)_2 + NH_2CONH_2 \longrightarrow NHCOCH_2CONHCO + 2C_2H_5OH$$

urea → barbituric acid

(Many substituted malonates may be hydrolized and decarboxylated to the corresponding subst. acetic esters.)

American-British Chemical Supplies, Inc.

Selling Agents For

KAY-FRIES CHEMICALS, INC.

180 Madison Avenue, New York 16, N. Y. MUrray Hill 6-0661

KAY FRIES CHEMICALS INC.

Plant—West Haverstraw, N. Y.

NEWSLETTER

If the current trend keeps up, chemical makers may be wooing the farmer as assiduously as are politicians. Latest large potential agricultural outlet: use of surface-active agents in fertilizer.

Illinois Farm Supply Co. (E. St. Louis, Ill.) and other fertilizer manufacturers have been quietly buying Monsanto's Santomerse 1 (an alkyl aryl sulfonate) in carload quantities, and adding one pound per ton of dry ingredients in making mixed fertilizer.

Function of Santomerse is to cut the "curing" time for the mixed goods from 30 days down to 3 days, giving a product that doesn't cake or "salt out" even after long storage. Result both in plant and on farm is a free-flowing fertilizer of uniform quality and particle size more easily handled in grain drills and fertilizer attachments.

Polyethylene packaging for frozen citrus juice concentrates may get a big boost if a grower organization, Florida Citrus Mutual (Lakeland, Fla.), succeeds in its plan to establish a $2 million fund to back operators of coin-operated dispensing machines. Plans call for 15,000 machines to be installed in drug stores and other public spots.

Only machines tested and approved by Mutual's lab at Lake Alfred, Fla. will be bought. And these include some that are charged with the frozen concentrate in the polyethylene wrap.

One Florida firm, Pasco Packing (Dade City), put such a bag-packaged product on the market last spring, but distribution has been limited to the Walgreen drug chain because supply is not great enough for general sale.

The question of sulfur allocation has touched off a jurisdictional dispute in Washington. NPA wants to drop controls, since the commodity is now in good supply (see Market Letter, this issue). But the International Materials Conference, backed up by the State Department, thinks NPA should retain at least token control as long as IMC has international allocation authority. But NPA apparently outranks IMC.

Further news on the international scene is that U. S. will get an additional 77 million pounds of Canadian aluminum to make up for production losses arising from the Pacific Northwest power shortage.

Aluminum Co. of Canada will sell the metal here under NPA control, will deliver during December and the first half of next year. This metal was originally earmarked for the United States, under contract with the British Government.

"Small business" quotas (CW Newsletter, Nov. 1) have now been set up by Small Defense Plants Administration for expansion of barite ore and chrysotile asbestos facilities. Small business will get 32% of DPA's barite expansion goal (460,000 tons more by 1955 than in 1951), and 25% of the asbestos increase (3,965 tons more by 1954 than in 1951).

But a "small' barite ore firm employs 150 persons or less; a small asbestos company is defined as having 2,500 or fewer employees.

Five major oil companies—California Texas, Socony-Vacuum, Standard of Calif., Texas, and Arabian American—which are charged to be members of an international oil cartel, have asked the U. S. Supreme Court to review and reverse lower court refusals to discharge a special District of Columbia grand jury convened at the request of U. S. Attorney General McGranery.

The petroleum firms' contention: fourteen of the twenty-three grand jurors are federal government employees, and eight of them are employed by agencies directly interested in the case.

Sulfur got into politics in the tense, closing days of the campaign last week. Ike-liking Gov. Shivers of Texas loudly complained that Adlai-backing J. R. Parten received a $3,664,000 Export-Import Bank loan just before the election for his Pan-American Sulphur Co., which plans a $5 million plant in Mexico to produce 300,000-600,000 tons a year.

Countered Democrat Parten: "I own only 6% stock interest . . . Of all our board of directors of fourteen, I have never been able to find anyone supporting Stevenson . . . except myself."

A tempest in a toothpaste tube is brewing over Lever Bros.' claims for Chlorodent Chlorophyllin-containing toothpaste. Research at Boys' Town, Neb. (CW Newsletter, Oct. 18) was cited in advertising—but before the scientific paper describing the research was published in the small but reputable Journal of Periodontology.

The American Dental Association has objected, pointing out that dentists should have a chance to read the paper to brief themselves for patients' questions based on their reading of the ads. Also, they said, the ads picked out exceptional cases, took them out of scientific context. Among the signers of ADA's statement: the editor of the Journal of Periodontology.

Consolidating and cutbacks are the order of the day at National Production Authority. In the works is a proposed reorganization of NPA's Chemical, Rubber and Forest Products Bureau.

This would consolidate three of the Bureau's divisions—lumber and wood products; pulp, paper and paperboard; and printing and publishing—into a new Forest Products Division. The realignment is master-minded by Lyle Tracy (on loan to NPA from Rayonier), deputy to Bureau head (and NPA assistant administrator) Fred Fraley.

The assimilation of NPA into the Commerce Dept. is going ahead at the same time. It is being monitored by government career man H. B. McCoy who wears two hats: Deputy NPA Administrator (No. 2 man under Crown-Zellerbach's Richard A. McDonald) and Acting Director of Commerce Dept.'s newly formed Office of Distribution.

Future trends in Commerce and NPA were revealed by McCoy in a talk last week: more emphasis on distribution problems. Any help with such problems, however, will come from Commerce rather than NPA.

Cutbacks at the Office of Price Administration have already been made, and the skeleton organization is functioning in full force.

Last week the "rotation" policy saw two new chemical industry men replacing two others. Richard H. Haigh (assistant to the president of Barrett) became chief of the Coke and Coal Chemicals Section; and Joseph B. Skaptason (Pittsburgh Agricultural Chemical vice-president) became chief of the Agricultural Chemical Section.

. . . The Editors

Phenolic Resin Manufacturers...

Your present equipment can produce UP TO 95% *more...*

by using Celanese* PARAFORMALDEHYDE

COST AND PRODUCTION COMPARISON†

TYPICAL FEED OPERATION	CASE 1 FORMALIN	CASE 2 PARAFORMALDEHYDE
No. of 1000 gal. kettles	1	1
Days per week	6	6
Shifts per day	3	3
Batches per day	2	3
Time/batch hrs.	12	8
Weekly costs $	12,480	22,464
Weekly Prod. lbs./per kettle	48,000	93,600
Unit Cost ¢/lb. of resin	26.0	24.15

†FOR A HARD, GRINDABLE PHENOLIC RESIN

- **30% larger batches—paraformaldehyde eliminates excess water bulk.**
- **⅓ shorter cycle time—reflux and dehydration steps can be cut by hours.**
- **greater yields—6½ to 18% lower formaldehyde to phenolic ratio (using paraformaldehyde) produces resins in 1½ to 2½% higher yields.**
- **new low price makes Celanese Paraformaldehyde competitive with formalin. New production units assure large volume supply.**

Celanese Resin Application Laboratory will be glad to assist you in utilizing paraformaldehyde in your resin formulations. For complete data, write for Technical Bulletin N-30, to Celanese Corporation of America, Chemical Division, Dept. 552-K, 180 Madison Avenue, New York 16, New York.

IF YOU PLAN ADDITIONAL INSTALLATION, you can materially reduce your capital investment by using Celanese Paraformaldehyde. No need for heated storage tanks; same output from smaller kettles; less storage space; lower steam, electricity and cooling water costs.

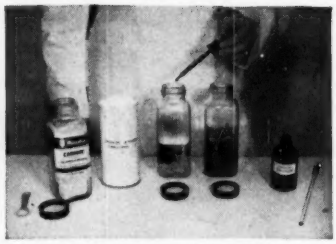
Celanese* CHEMICALS

*Reg. U. S. Pat. Off.

Dependable Source for Chemical Raw Materials

1 *Add equal amounts of your product to each jar.*

2 *Add small quantity of Carbose to one and dissolve.*



3 *Add carbon suspension to each jar.*

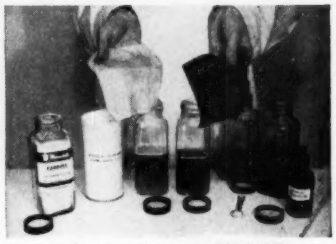
4 *Place a cloth swatch in each.*

5 *Cap jars and shake for 10 seconds.*

6 *Withdraw swatches.*

7 *Place swatches in rinse water.*

8 *Rinse by shaking for 5 seconds.*



9 *Remove swatches . . . and COMPARE!*

Make Wyandotte's 2-minute Soil Deposition Test yourself. See what Carbose can do for *your* detergent product!

BULLETIN BOARD

Dicol**:
This mixture of diglycols, predominantly diethylene glycol, has shown outstanding efficiency in plasticizing and humectant applications . . . plus up to 20% savings! Write for samples, data.

Purecal:
Recent advances in GR-S compounding and processing, using this whitest pigment extender known (Wyandotte's precipitated calcium carbonate) warrant cost comparison with cheapest natural-rubber formulas. Other profitable applications: paint, paper, ink manufacture.

Caustic Soda:
Some cleaning compound manufacturers are finding that powdered caustic has some advantages over flake. Since other ingredients are powdered or fine-granular, a dust-suppressing oil is needed anyway; and **the powdered caustic does not tend to segregate.** Ask for trial quantity.

Soda Ash:
Supply of soda ash is adequate for the present; and we're expanding production to meet growing needs of old and new customers.

ONE PERCENT Wyandotte Carbose improved detergency up to 40%!

Reduction in the cost of raw materials as high as 50% by use of CARBOSE* formulations . . . that's the kind of report we're getting on CARBOSE from the field!

It's no surprise. In carefully controlled tests on cotton, this outstanding "detergency promoter"—as little as 1%—*increased soil removal and whiteness retention as much as 10% to 40%* in different formulations with synthetic detergents and builders. CARBOSE promotes long-lasting suds, reduces skin irritation—ideal for dishwashing, car-washing and other compounds where emolliency is desirable.

This superior product is typical of Wyandotte. For the quick facts on current production, improvement and development of other Wyandotte chemicals for the process industries, read the "Bulletin Board," left. For samples with which you can make the above test yourself or for more complete information, write—*Wyandotte Chemicals Corporation, Wyandotte, Michigan. Offices in Principal Cities.*

*REG. U.S. PAT. OFF.

Wyandotte
CHEMICALS
HEADQUARTERS FOR ALKALIES

COMPANY	SALES, (All figures, millions of dollars)					EARNINGS				
	3rd Q. '52	2nd Q. '52	3rd Q. '51	9 mo. '52	9 mo. '51	3rd Q. '52	2nd Q. '52	3rd Q. '51	9 mo. '52	9 mo. '51
Air Reduction	29.3	31.9	29.3	92.4	87.6	1.7	1.9	1.7	5.6	5.6
Allied Chem. & Dye	117.2	127.0	121.8	361.6	376.8	9.1	10.8	9.4	29.7	29.8
American Cyanamid	85.4	89.4	95.7	271.7	306.3	4.0	5.5	5.2	16.9	30.2
Atlas Powder	13.2	13.3	12.9	38.8	38.9	0.5	0.5	0.4	1.4	1.5
Commercial Solvents	12.8	11.0	13.6	34.4	45.7	0.3	0.0	1.3	0.5	4.5
Davison Chemical	11.6	15.4	9.5	42.7	36.0	0.6	0.7	0.4	2.1	2.2
Diamond Alkali	18.4	18.2	21.5	57.2	60.4	1.2	1.3	1.8	4.2	5.2
Dow Chemical	93.9	106.6	97.8	300.9	283.3	7.9	10.1	8.9	26.5	29.4
Du Pont	407.4	379.2	380.7	1,166.7	1,150.7	54.0	50.9	40.7	155.6	159.0
Freeport Sulphur						1.9	1.9	1.8	5.2	4.8
Hercules Powder	43.6	43.7	53.7	135.3	164.4	2.6	2.8	2.9	8.5	9.5
Heyden Chemical	5.2	4.8	7.2	15.8	23.0	0.2	0.2	0.5	0.8	1.9
Int. Min. & Chem.	17.2	26.2	15.3	70.0	56.5	1.1	2.7	1.0	6.1	5.7
Mathieson Chemical	33.3	31.8	22.5	94.3	69.9	3.4	2.9	2.2	8.9	7.8
Merck	21.9	26.9	28.8	78.4	89.4	1.5	2.4	2.7	6.6	8.9
Monsanto Chemical	63.0	62.9	67.3	189.3	207.0	5.0	5.7	5.4	16.0	16.7
Parke, Davis	28.2	32.0	34.2	99.0	102.9	4.0	4.6	4.6	13.8	13.3
Penn. Salt	14.4	14.5	11.6	43.7	36.8	0.7	0.7	0.6	2.3	3.1
Chas. Pfizer	26.7	23.7	24.4	80.7	73.0	2.1	2.7	2.6	8.2	8.2
Rohm & Haas	25.2	26.5	24.0	78.0	83.0	1.3	1.3	1.3	3.8	5.3
Union Carbide	231.7	221.5	232.2	684.6	690.5	24.3	23.1	23.2	70.7	77.0
Victor Chemical						0.6	0.6	0.6	1.9	2.1
Totals	1,299.6	1,301.5	1,304.0	3,935.5	4,490.6	128.0	133.3	119.2	395.3	431.7

Third Quarter: A Surge

Nine month's sales of 22 companies are down 12.3% from 1951, reflecting earlier-in-the-year doldrums. Third quarter sales are off only 0.3%.

Net earnings for nine months are down 8.4%, but profits for last quarter are up 7.4%.

Ahead: a high level of sales activity.

The quarterly torrent of corporate earnings reports this week reached its high mark. And they contained clear evidence that chemical sales are well out of the summer slump.

Where sales for the first six months of the 22 companies surveyed by CW were down 17.3%, billings for July, August and September were only 0.3% below a year ago. And each month has been better than the one before—pointing toward a continued high level of sales.

The picture, company by company, is spotty. Not every company has the diversification which seems to be the key to weathering (1) steel strikes, (2) the off-again-on-again textile doldrums, or (3) price cutting on such products as ethyl alcohol and antibiotics.

But optimism is contagious. One company president, who has had some unpleasant news for his directors this year, last week told them that September sales were better than those in any previous month, better than September, 1951, and still increasing.

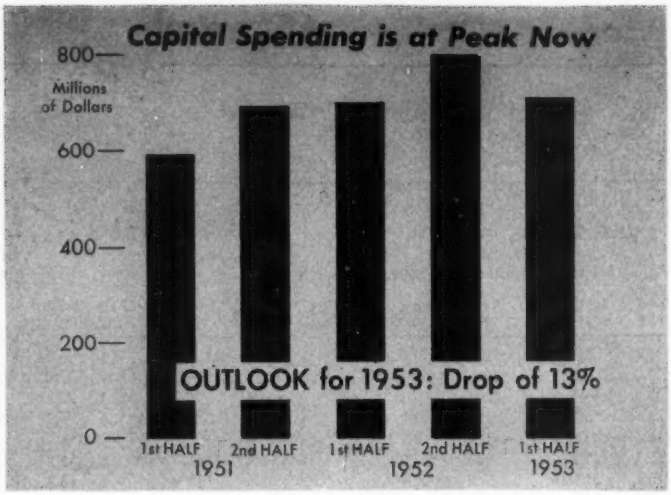
Profit Picture: Net earnings, too, were on the upswing. The third quarter tote-up showed a 7.4% increase over 1951, compared to a 14.4% drop for the first six months of the year.

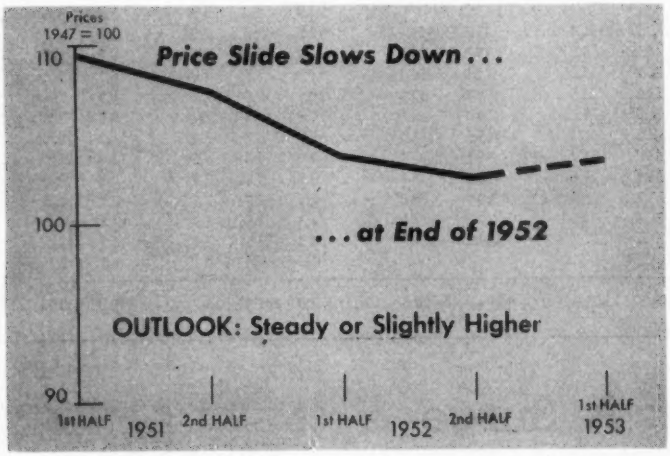
But here, the trend is not as clear. Reason: differences in the excess profits tax liabilities of the companies. Those corporations experiencing sharp drops in sales can get refunds of varying sizes, depending both on the earnings themselves and on the companies' tax bases. Any such refund, of course, can end up in several places in a published earnings statement.

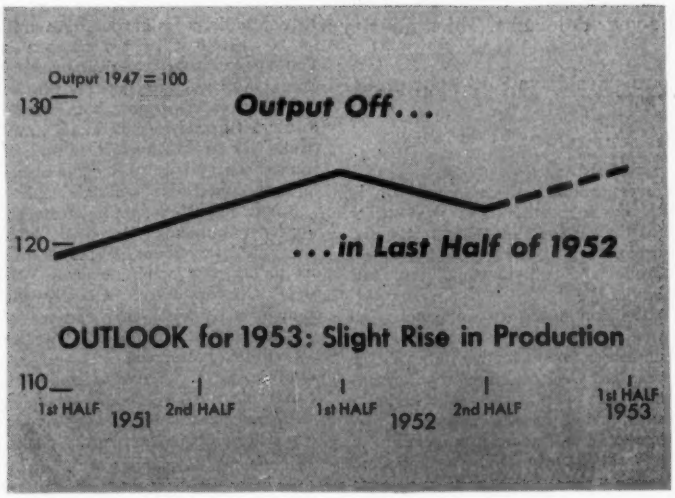
In any case, some records are noteworthy. Mathieson increased both sales and net by about 50%. Du Pont's net on its own operations was 70% higher than last year. (Actually, the comparison is misleading because of retroactive taxes pulling down the 1951 third quarter net.)

All in all, the recovery has been remarkable. Even the companies which have been hardest hit are already, or soon will be up to their earlier peaks.

Overleaf, CW analyses the industry outlook for 1953.







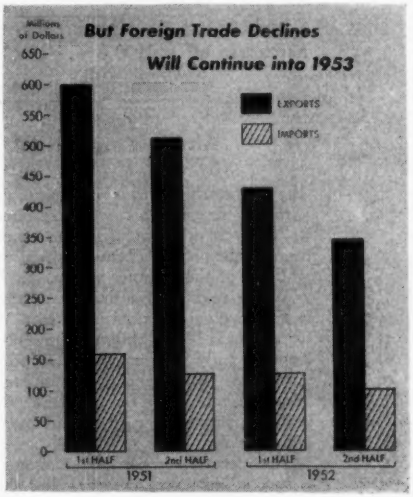
Ahead: Main

You can be a lot more positive about the business outlook than you can about elections. For voters being what they are, election predictions usually prove only that hindsight is 20-20. But the factors shaping business activity happily are more tangible, and permit a reasonable amount of reasonably keen foresight.

For the short period ahead with which this McGraw-Hill Department of Economics Outlook Survey—completed before Nov. 4—is concerned, the election outcome will not materially affect business. The economic factors responsible for the business boom seem relatively well established. And it isn't likely that any administration can substantially alter defense program expenditures until the next year is nearly over.

Although figures on planned capital expenditures are tentative, it is clear that such expenditures will not be far below 1952. The total for all manufacturing is down, but only about 8%. In this respect, the chemical industry, usually regarded as a perpetual growth industry, is somewhat off the pace. Planned expenditures of $1,301 million represent a 13% drop from 1952.

Reason for this above-average decline: Expansion in 1952 has been so large that, even with some further growth in chemical markets, there is no need to add new capacity at the same record pace. Rayon companies, with a very severe drop in planned capital expenditures, pull down the



Factors Spell Continued Surge

chemical industry figure considerably. Industrial chemicals makers, on the other hand, will be spending for plant and equipment on an average only 10% less than this year.

In contrast to the chemical industry, an allied industry—petroleum—will boost its expenditures 5%. This outlay will go for new wells, pipelines and refineries. A falling behind in 1952's schedule is a partial explanation for this increase.

Two To Reckon: Planned expenditures of $1,301 million for the chemical industry, however, are nothing to sneeze at: they are capped only by this year's spectacular outlay. But two factors might force more of a cut before 1953 is over: (1) rising costs and (2) lower consumer spending.

Management might change present investment plans if profit margins are pared further by rising costs. A new round of wage boosts and/or some competitive price cutting would certainly darken the now bright outlook. And it's hard to say what the consumer will do. Consumer spending is now on the upswing, but how high it will go before people spend less, save more, is the big unknown.

On the price side, chemical manufacturers can look to at least stability, with the likelihood of a slight rise in the next several months. Over the last four months, there has been a leveling off in wholesale chemicals prices following the 8% dip from 1951's peak.

They can also look to a continuation of the improved demand for products rising out of increased production in several end-use industries. General business should continue to be good, which indicates a moderate rise in output of chemicals extending into the next year.

One area in which chemical producers can expect little improvement is the foreign market. The decline in exports—traceable to currency problems and stiffer competition from foreign manufacturers—will continue. Imports follow the same trend, though the downward slope is not so great.

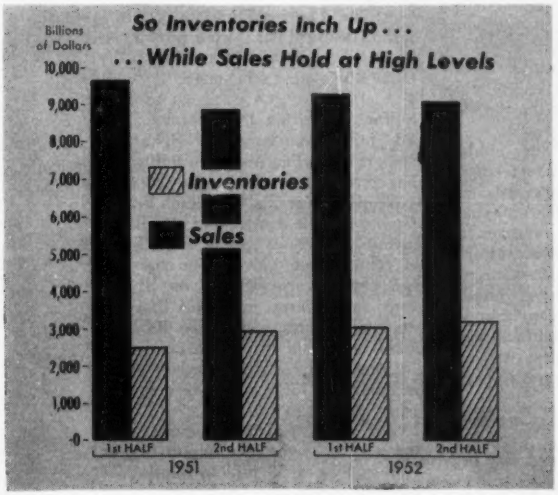
This export weakness is in part reflected in high inventories, which have been inching up and will continue to rise. Sales are also on the upswing, however, and the level should rise still further through the first half of the next year.

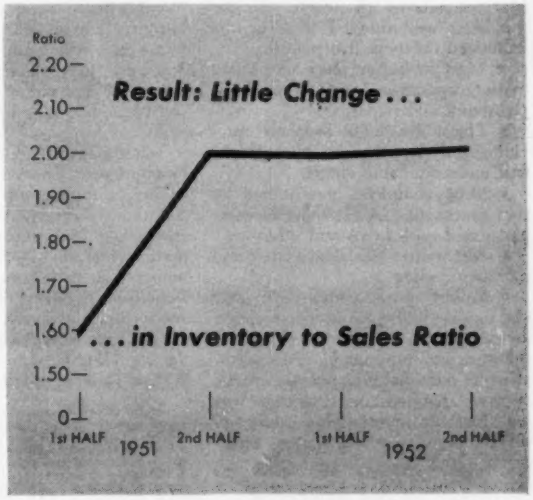
What all these factors boil down to is this: It looks as though the boom will be sustained for another full year, but it is up to the salesmen to keep output moving, prove that capital investment plans are not too ambitious.

CAPITAL EXPENDITURES

Millions of Dollars

	Actual 1951	Estimated 1952	Planned 1953	% Change 1952-1953
CHEMICALS	$1,283	$1,503	$1,301	—13
PETROLEUM	2,014	2,812	2,967	+ 5
STEEL	1,304	1,718	1,428	—17
TEXTILES	695	491	417	—15
FOOD	968	933	998	+ 7
MACHINERY	675	773	661	—14
ELECTRICAL MACHINERY	359	407	468	+15
AUTOS	736	909	791	—13
TRANSPORT EQUIPMENT	182	229	144	—37
OTHER MANUFACTURING	2,914	3,033	2,578	—15
ALL MANUFACTURING	11,130	12,808	11,753	— 8





Well-Rounded First

Monsanto Chemical Co. last week became the first chemical company to win the gold "oscar" for the best annual report of all industry in the Financial World twelfth annual survey. The report that earned the company top position among the 5,000 judged, fittingly enough was Monsanto's fiftieth*—issued last February.

In receiving the trophy, President Charles A. Thomas was taking a bow for turning out the best example of what Weston Smith, originator and director of the competition, calls "management's primary editorial forum . . . to prove by reporting their progress how our corporations are serving the best interests of all people." It was the best "well-rounded" presentation as judged on these five points:

- Most attractive piece of printed matter, superior in design, typography, presswork and paper.
- Finest illustrated brochure, providing only appropriate photographs and understandable charts.
- Most complete presentation of comparative financial statements, complemented with ratios and other aids.
- Best written president's letter and narrative section.
- Fullest interpretation of facts and figures, without misrepresentation or exaggerations.

Just as any top-ranking accomplishment in any field is not the result of mere happenstance, neither was the Monsanto report. Three years ago the company surveyed leading financial analysts to determine what kind of information they wanted about a corporation—and in what form. There is ample evidence of what they said in the accolade-winning brochure.

Detailed financial data, charts, a Disposition of Funds table are primary features; too, for the first time, gross profit vs. sales is graphed. Operating functions—sales, production, research, foreign, expansion and personnel—are the basis on which the report is divided. Reason: to make the firm's operations understandable to a stockholder who buys a share, not in a division, but in the company as a whole.

MONSANTO CHEMICAL CO.

MONSANTO REPORT WRITERS*: The golden touch.

Other features: a complete computation of the revised employee bonus plan—since the plan had not been voted by stockholders; a table which traces the percent of sales to major consuming industries for the past five years.

Team Effort: Though the "golden" brochure was Thomas' direct responsibility, a number of specialists contributed to its creation. The company's advertising and public relations department, headed by Howard Marple, prepared it, with James Zack responsible for organizing the information and writing the finished copy. Supplying the financial information and lending a guiding hand to the writers was Walter Thilking, assistant to the controller. The board of directors too acted as consultants, had a chance to check galley proofs, make suggestions.

Outside help was also used: The Illustrators, an art service; Warwick Typographers; Whittaker-Ruehl, for both color and black and white plates; and Simmons-Sisler, printer (all St. Louis firms). And Hubert Kay, former Luce publications editor, did historical vignettes.

Other Scorers: Monsanto bagged the big prize, but it was not the only chemical company outstripping other industry companies. Allied Chemical & Dye Corp. received a silver "oscar" for its annual report advertisement, judged best of the year. And Aluminium Ltd., Montreal, won another silver "oscar" for the best report of all Canada.

Runner-up to Monsanto in the chemical industry division of the survey was Rayonier, Inc., with Dow Chemical third. These are no mean accomplishments either, for chemicals is one of the major industries where the Financial World says rivalry in turning out a good annual report is most intense.

* Of which 61,000 copies were printed, distributed to its 24,000 stockholders, other interested people, companies and institutions.

* Some of the staff responsible for prize-winning annual report (left to right): Russell Viehman of The Illustrators; Walter C. Thilking, assistant to the controller; Howard A. Marple, director of advertising and public relations; Charles A. Thomas, president; and James G. Zack, in charge of stockholder relations, advertising and public relations.

EXPANSION . . .

Plastics, resins. Three companies detailed expansion plans this week:

- U.S. Rubber's Naugatuck Chemical division will double the capacity of its Painesville, O., vinyl resin plant. When completed, production there is expected to total more than 50 million pounds a year.
- Dow Chemical has begun production of polystyrene at its Allyn's Point, Conn., plant, using styrene shipped in from Freeport, Tex. Dow previously has made the polymer only at Midland.
- The Plastics Division of Monsanto Chemical has started production of its line of plastics in a plant on the Ohio River, near Cincinnati.

•

Sulfur: Following the approval of a $3.6 million loan from the U.S. Export-Import Bank, Pan American Sulfur Co. has revealed details on its proposed extraction plant. The $5 million Frasch facility is to be constructed at Jaltipan in southern Vera Cruz on the Isthmus of Tehuantepec, Mexico. The company has obtained concessions on 22,000 acres in the area, and feels that the unit will be able to produce 300,000-600,000 tons of brimstone yearly.

Construction is scheduled to begin in February, 1953, and to be completed by August of 1954.

The plant will be financed both through the eight-year Export-Import loan and by a $3 million offering of common stock.

yours to use

View of Terminal at Goodhope, Louisiana.

5 TANK STORAGE TERMINALS—

Important Marketing Centers

- Port of New York (Carteret, N. J.)
- Port of New Orleans (Goodhope, La.)
- Chicago
- Houston
- Corpus Christi

Modern bulk liquid tank storage terminals with guaranteed privacy. Storage facilities, pipelines and closely guarded manifolds (designed to protect against contamination) are yours to use. At Carteret and Goodhope terminals your bulk liquids can be blended to specification, canned, drummed or barrelled for distribution. ***All this without investing or risking your capital!***

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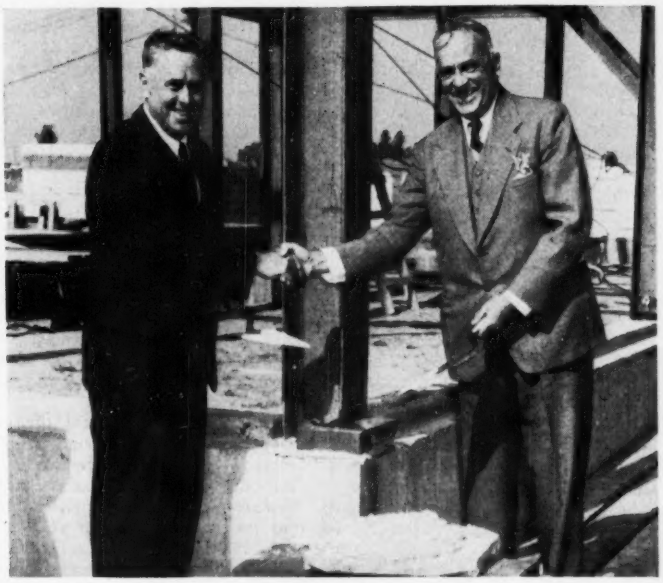

BRICKLAYER MOGULS*: Launching new chemical subsidiary north of the border.

Bridge over Tariff Wall

Just as the June moon has branching-out effects on human population, there are tariff, market and labor factors that have led chemical companies in the United States to set up a spate of subsidiaries and branches in Canada recently.

No fewer than 16 Yankee chemical processing companies, through their newly organized Canadian branches, have built plants on Maple Leaf soil during the past year and a half. Still other CPI companies have established sales offices in Canada, or have licensed Canadian companies to manufacture their products for the Dominion market.

Tariff Rates Rising: Current exchange rates, with the Canadian dollar worth three to five cents more than the Washington greenback, probably hasn't been much of a deterrent to trade between the two nations. Among the more compelling reasons for U.S. firms' going into production in Canada are these:

- Canadian tariff rates have been boosted, particularly those on processed materials such as emulsions, cellulose salts, molded plastics (*CW, May 17*). Some Canadians feel that their customs rates should be re-hiked to give industry still more protection.
- Canada's rapidly expanding economy represents a growing market for many kinds of products, and it's quicker and simpler to do business when buyer and seller are located in the same country.
- In many cases, raw materials are as readily available (or more so) in Canada, as in the U.S., and if the finished products are to be sold in Canada, locating the factory there means lower transportation costs.
- Wages and salaries have been rising in Canada, but still lag behind U.S. averages, so that there's a small saving in doing factory work north of the border.

Southeast Grouping: Of the 17 branch plants (of the 16 companies) newly built or still under construction, most are located in the provinces where Canada's chemical industry is concentrated. Seven are in Ontario, eight in Quebec; and two are in Alberta, near the oil and gas fields.

In size, these plants range all the way from a small rented shop manned by two persons up to a multi-building layout that will cost more than $60 million and will have about 700 employees.

Products of these plants include dozens of items from adhesives to pharmaceuticals, and volume of production likely will be big enough to curb the rise in Yankee chemical exports into Canada. (That figure swelled from $134 million in 1950 to $165 million last year—about 86% of Canada's total chemical imports.)

Wheels Turning: Among these new plants that already have started production is that of American Resinous Chemicals of Canada, Ltd., which is turning out solutions and emulsions for coatings, adhesives, binders, saturants and sizes at New Toronto, Ont.

Canadian Chemical Co., Ltd., a subsidiary of Celanese, has a large plant under construction at Edmonton, Alta., for production of chemicals from liquefied petroleum gases and of cellulose acetate and acetate textile yarns and fibers. Building began in June, 1951 and production is expected to start about the middle of next year. A group of Canadian technicians now is in training at Celanese's Chemcel plant in Bishop, Tex.

One of the smaller of these new operations is the year-old plant of Clairol, Inc., of Canada, in Montreal, Quebec. Like its parent company in Stamford, Conn., this firm makes hair dyes and similar preparations.

Highly Mechanized: Another Canadian firm that's an offshoot of a company in the Nutmeg State is Connecticut Chemicals (Canada), Ltd., whose Toronto plant is described as "completely equipped to blend and fill all aerosol products now on the Canadian market." Processes, including cooling products to −30 F before piping into the stainless steel electronic filling machine, are nearly fully automatic.

North American Cyanamid, Ltd., already a robust performer in Canada, has just started producing pharmaceuticals and refining aureomycin in a new steel-frame plant (including warehouse and offices) in Montreal. This plant will help meet "sharply rising demands for industrial chemicals and pharmaceuticals," according to President F. S. Washburn, "and it is hoped will make North American Cyanamid independent of imports of many pharmaceutical items from the U.S."

Also in the pharmaceutical line and located in Montreal is the leased property of Pfizer Canada, Ltd., which since last February has been producing dosage forms of terramycin, penicillin and streptomycin.

Resin Intermediates: Scheduled to go on stream next April, the $3 million plant of St. Maurice Chemicals, Ltd., in Varennes, Quebec, will specialize in formaldehyde and pentaerythritol. It will use processes of Heyden Chemical, co-owner along with Shawinigan Chemicals, Ltd. Other products will be formic acid, and sodium formate.

Two big plants comprise the chemical division of Shell Oil Co. of Cana-

* Heyden President John P. Remensnyder and Shawinigan President V. G. Bartram wield ceremonial trowels at start of construction of St. Maurice Chemicals plant in Varennes, Que.

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da, Ltd., formed early this year. Production of elemental sulfur already has started at the Jumping Pound plant near Calgary, Alta., and construction of the chemical plant (acetone, isopropyl alcohol) at Montreal is scheduled for completion early next year. The Montreal plant, designed by Shell Chemical Corp., will be adjacent to Shell's new multi-million-dollar refinery at Montreal East.

Other chemical companies that have expanded in Canada under Yankee sponsorship within the past 18 months: Atlas Powder Co., Canada, Ltd., Brantford, Ont. (explosives); Behr-Manning (Canada), Ltd., Brantford, Ont. (abrasives); Boston Varnish Co., Montreal (paints, varnishes, enamels); Cabot Carbon of Canada, Ltd., Sarnia, Ont. (carbon black); Minnesota Mining & Manufacturing Co. (Canada), London Twp., Ont. (adhesive tapes, abrasives); Norton Co., Three Rivers, Que. (abrasives); Reichhold Chemicals, Ste. Therese, Que. (resins); Seal-Peel Co. of Canada, Ltd., Windsor, Ont. (plastic preservatives); and Strong Cobb of Canada, Ltd., Montreal (pharmaceuticals).

Canada's chemical industry has been expanding at the rate of about 10% a year, and U.S. direct investments in chemical and allied industries in Canada have been climbing by almost the same rate (245% in the 21 years through 1947). Chemicals ranked eighth among all manufacturing businesses in Canada in value of products last year; so, if Sir Wilfrid Laurier's celebrated prediction proves good, the 20th Century may belong to Canada—but Yankee chemical companies will have a share in it.

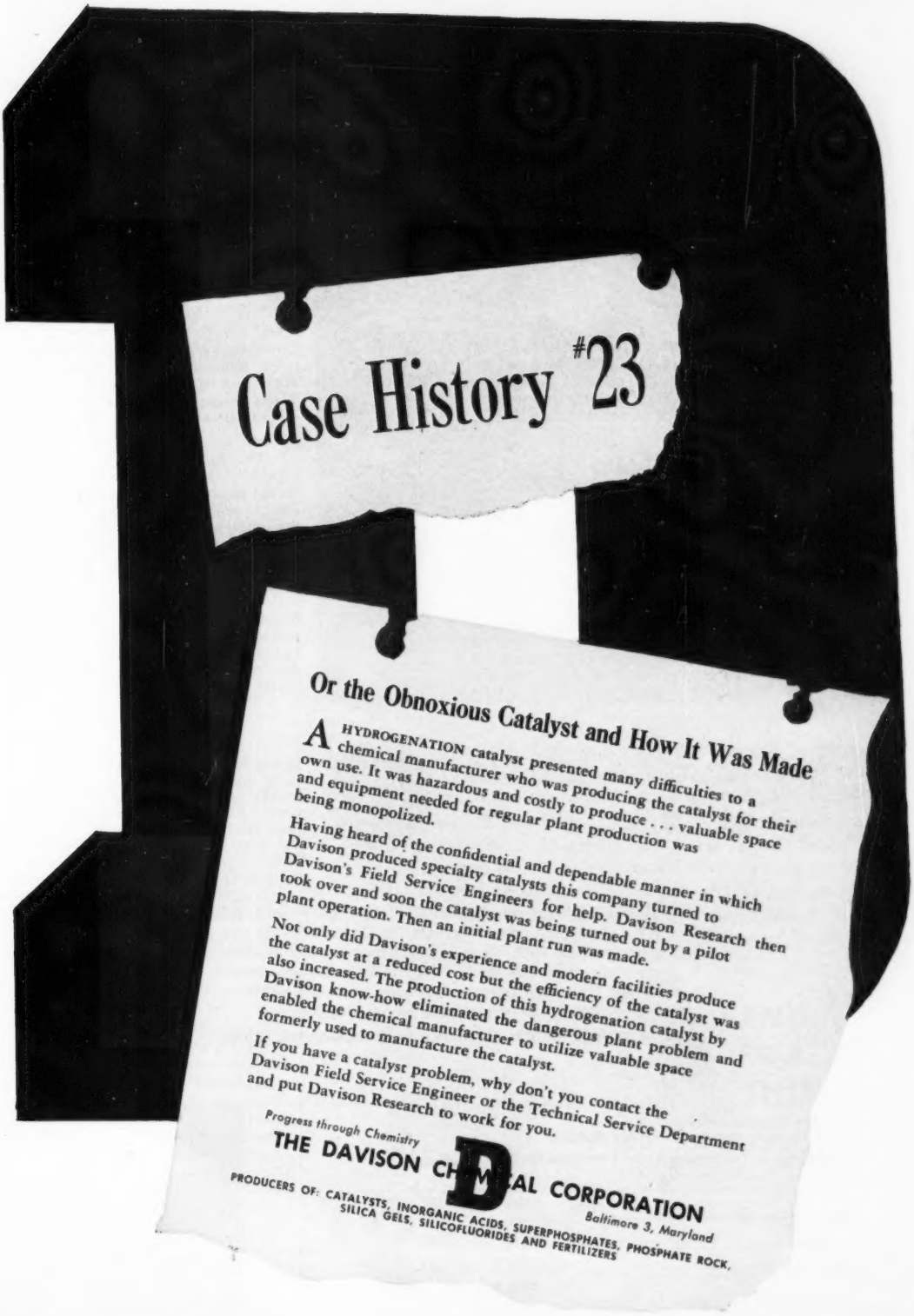
LABOR . . . . . .

Flurry of Contracts: Nearly as numerous as November's falling leaves are the chemical labor contracts reported this week. All of them involve wage increases, ranging from 1¢ to 19¢ per hour:

- Johns-Manville plant at Lompoc, Calif., "very substantial" wage hike plus "liberalized" vacation program, subject to WSB approval, for about 350 members of AFL Chemical Workers Union, concluding a strike that lasted more than seven months and caused a shortage of diatomaceous earth. Continued in the new contract: voluntary check-off system for union dues, previous incentive pay.
- Celanese plant at Hopewell, Va., 5¢ rise for 13,053 workers, members of District 50, United Mine Workers of America (Ind.).
- U.S. Gypsum plant at Alabaster, Mich., 5¢ boost for members of United Gas, Coke & Chemical Workers (CIO), subject to WSB approval.
- Monsanto plastics division plant at Springfield, Mass., 1¢ cost-of-living rise for 1,400 production employees in United Electrical Workers (CIO) effective Oct. 20, brings total increase since July, 1950 to 36¢.
- Union Carbide & Carbon plant at Texas City, 6¢ hike approved by WSB for 1,986 workers retroactive to Sept. 1, negotiated by AFL Metal Trades Council for members and 320 non-union members.
- U.S. Rubber chemical division plant at Naugatuck, Conn., 5¢ increase okayed by WSB effective Sept. 28 for members of Chemical & Plastic Workers Alliance (Ind.); present contract continues for another year.
- U.S. Reduction plant at East Chicago, Ind., 5¢ general increase okayed by WSB as remainder of 11-cent hike negotiated last summer with Gas-Coke.
- Hercules Powder plant at Brunswick, Ga., 2¢ cost-of-living boost plus increased shift differentials for members of International Chemical Workers Union (AFL).
- National Gypsum plant at Parsons, Kansas, 2¢ rise for 3,600 members of Gas-Coke.
- U.S. Phosphoric Products plant at Tampa, Fla., 2¢ cost-of-living boost retroactive to July 15 for 700 members of AFL Chemical Workers, plus 3¢ intra-plant adjustment retroactive to last Jan. 1 and subject to WSB approval.
- Firestone plant at Hamilton, Ontario, 8¢ general increase, $50 retroactive payment, and new pension and severance pay plans are provided in new contract that ended strike by 1,300 members of United Rubber Workers (CIO).
- Allied's Semet-Solvay Division plaant at Ashland, Ky., 19¢ rise (in three installments) for members of Gas-Coke.
- International Minerals & Chemical plant at Somerset, Ky., 7¢ rise for members of District 50, UMWA.
- Chemico plant at Cuyahoga Falls, Ohio, 10¢ general increase for members of District 50, UMWA.
- Dow Chemical plant in Sarnia,

DPA's LATEST TAX WRITE-OFF LIST

Company, Location	Product	Amount Certified	% Certified
Allied Chemical & Dye, Moundsville, W.Va.	Methylene chloride	$2,500,000	60
Goliad Corp., Lavaca County, Tex.	Propane, iso-butane, natural gasoline	2,588,610	65
Great Lakes Carbon, St. Louis, Mo.	Metallurgical Coke	10,505,000	55


Case History #23
Or the Obnoxious Catalyst and How It Was Made
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Stormy Weather: In a few chemical plants, there's a November frost on industrial relations:

• On strike nearly three months now, ICWU members at Rensselaer, N.Y., still are cold toward terms proposed by General Aniline. Local President John B. Ryan says 400 of his approximately 500 members have voted unanimously to continue their strike while negotiations go on.

• Following rejection by Dexter Sulphite Pulp & Paper of union demands including a 15¢ wage rise, members of International Brotherhood of Pulp, Sulphite & Paper Mill Workers at Dexter, N. Y., have voted in favor of a strike. The issue has been referred to a mediation board.

• At three atomic plants, labor relations are chilled to the cold-shoulder stage. Members of Oil Workers International Union (CIO) say they will strike against the Arco, Ida., plant being operated by Phillips Petroleum if that company "persists in its refusal to bargain seriously." Members of AFL Atomic Trades Council, have turned down Carbide & Carbon's offer of a 3-year contract with a 10¢ wage rise at Oak Ridge, Tenn. And at strike-ridden Paducah, Ky., the AFL Operating Engineers broke into the headlines twice last week. Its members employed at the atomic plant failed in their attempt to get the nearest U. S. District Court to take up their $3.25 million suit against the union for allegedly denying self-government to the local union. Members of that union stayed off the job at the new TVA power plant (which will provide "juice" for the atomic plant).

•

Layoff Notices: Employment is slackening off in these isolated instances:

• At Memphis, Tenn., Local 19 of Distributing, Processing & Office Workers Union (Ind.) reports that Buckeye Cotton Oil's chemical pulp plant has laid off 200 out of its 500 employees due to loss of several government and foreign contracts.

• At Paducah, Ky., the Atomic Energy Commission has sliced more than 1,600 men from its field force at the uranium separation plant as certain phases of construction were completed.

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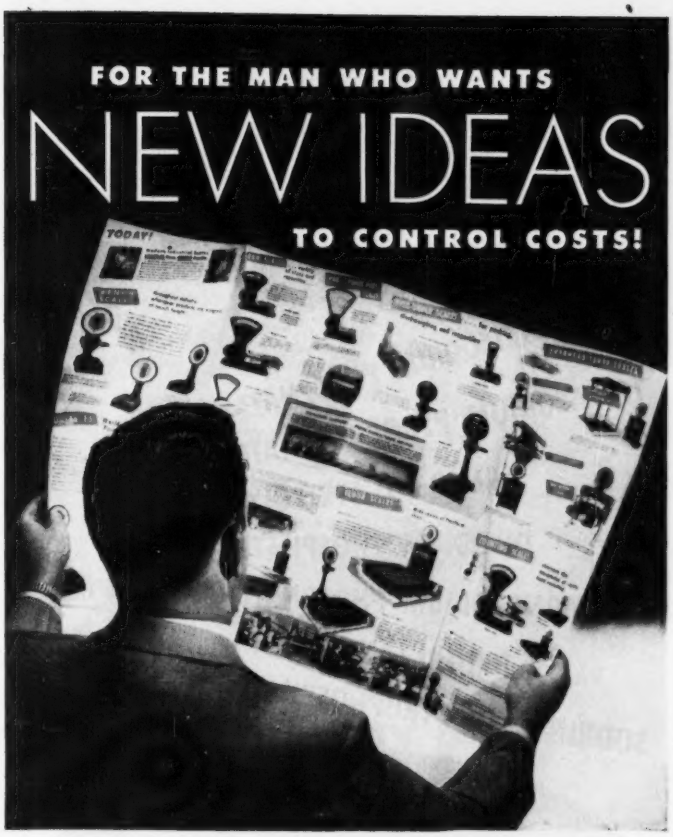
Business with the Board: Disregarding John L. Lewis' advice to labor unions to steer clear of the NLRB, the hustling Gas-Coke unionists are



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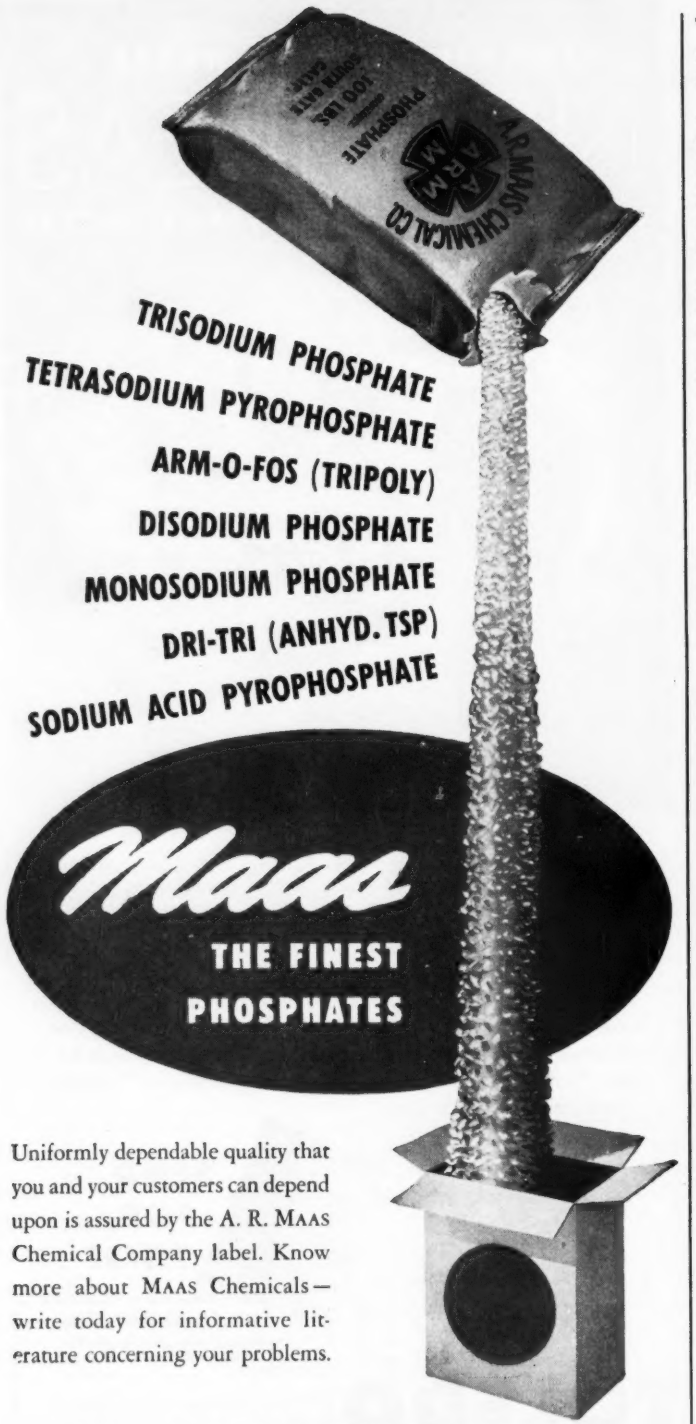

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in the news this week with three dealings with the Board:

- The union is accusing Sharples Chemicals at Riverview, Mich., of disobeying an NLRB order and of "depriving its employees of their right to be represented by a union of their own choosing." Gas-Coke is threatening to go to court to force the company to comply with the NLRB order.
- NLRB will hold a hearing in Seattle next week on Gas-Coke's petition for an election to determine the bargaining agent for 120 employees at the Seattle Gas Co. plant. The group presently is represented by the AFL Chemical Workers.
- Gas-Coke will vie with the AFL Atomic Metal Trades Union for bargaining rights at the atomic energy plant to be operated by Carbide & Carbon at Paducah, Ky.

Statistics Switch

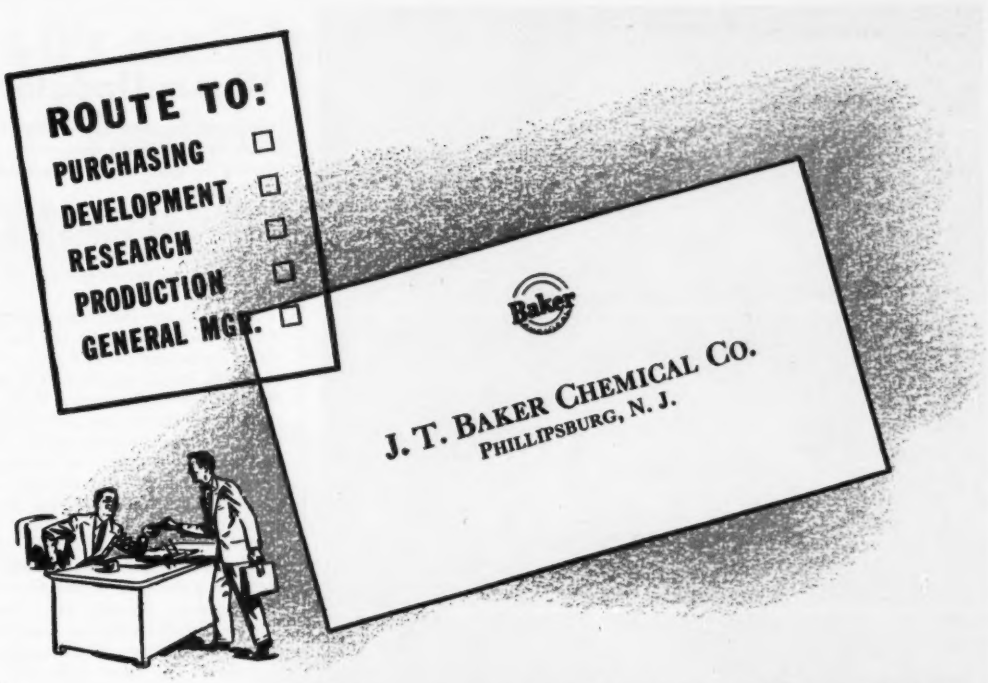
The Bureau of the Census is now asking producers of fatty acids whether they want a change in the Bureau's monthly Fats and Oils Reports.

The request for the change was made by the Association of Soap & Glycerine Producers' fatty acid division on the grounds that the new classifications would give a more meaningful and useful picture of production trends. The present classes, it feels, are ambiguous; the proposed ones, clear-cut.

If the Bureau receives enough favorable comment, it will change its reporting basis next January.

Present Classes: The fatty acid classes are items 75 through 82 in the Fats and Oils Report. These are the listings: vegetable oil fatty acids from foots and other than those from foots; animal fat and oil fatty acids; fish and marine mammal fatty acids; glycerides derived from fractionation of whole oil; stearic acid, oleic acid, and other fatty acids from fractionating or pressing; solid fatty acids produced by splitting hydrogenated fats and oils, or by hydrogenation of fatty acids.

Proposed Classes: These eight listings have been advocated by the fatty acid division: stearic acid (40-50%) as single-, double-, triple-pressed; high palmitic acids, hydrogenated animal and vegetable acids and stearic acids not reportable above; hydrogenated fish and marine mammal fatty acids; unhydrogenated fish fatty acids; coconut and babassu fatty acids and other mixed or fractionated saturated fatty acids—lauric, caprylic, capric and myristic; oleic acid (red oil); unsaturated animal fatty acids other than oleic; unsaturated vegetable, fish or marine mammal fatty acids.



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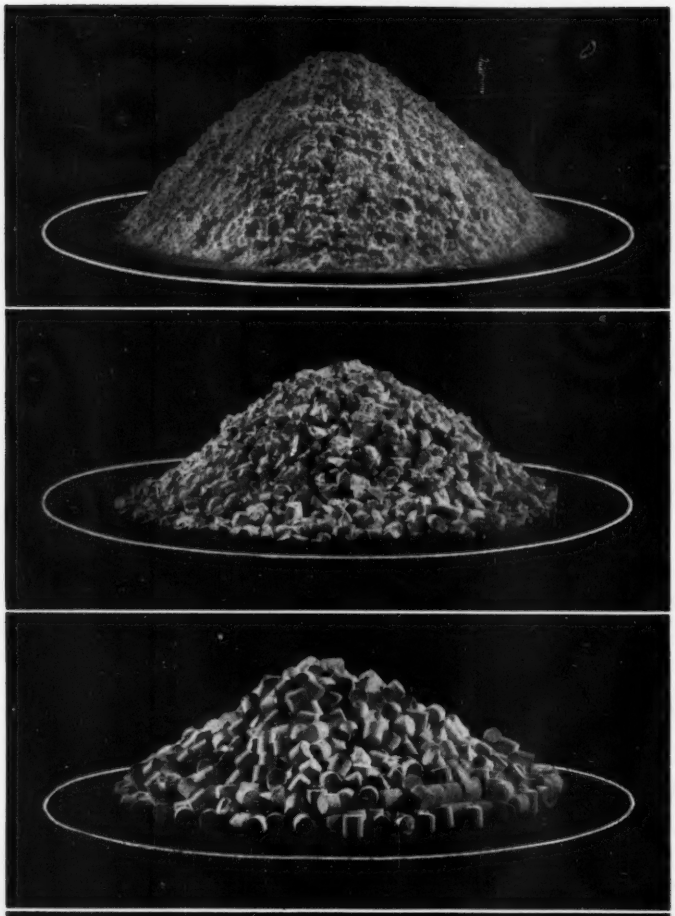

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Water Update

Water shortages in the Pacific Northwest and in Texas last week were having the same effect: a slowdown in production.

Most important in the Northwest was power. Though the power shortage is not a long-term proposition, it has resulted in an immediate loss of output.

Two primary aluminum producers, Alcoa and Kaiser, previously had curtailed operations (*CW, Nov. 1*). Now Reynolds Metals has shut down better than 10% of its Longview, Wash., reduction plant because the power it obtained from a nearby public utility district was insufficient to replace the interruptible power previously supplied by the Bonneville Power Administration.

Meanwhile, four Houston, Tex., plants face possible shutdowns because of a shortage of process water.

The four: Sinclair Oil, Sinclair Rubber, Goodyear Rubber and Champion Paper & Fiber. Water supply for the plants has come from the San Jacinto River. The river's flow is now about half normal.

The companies feel that they can "get along" despite the cuts, but they fear any further ones will force them to suspend operations.

COMPANIES. . . .

Union Oil of California has formed a wholly-owned subsidiary to handle its chemicals. The company will use the name, Brea Chemicals, Inc. Both production and marketing will fall in the new company's bailiwick.

•

International Minerals plans to sell $20 million worth of subordinated convertible debentures, due in 25 years, with stockholder approval. White, Weld & Co., will head the underwriting group. Stockholders also have okayed a boost in the authorized common stock by enough to take care of the debentures converted before 1958.

About $16 million would go to actual construction of new facilities.

•

Thurston Chemical has registered with the SEC an offering of $1 million worth (par value) of preferred and 84,130 shares of common stock. The common is a sale by present holders, so only the preferred would bring in new expansion money for the fertilizer producer.

•

Sinclair Oil stockholders will consider adding a conversion feature to the company's $100 million issue of sub-

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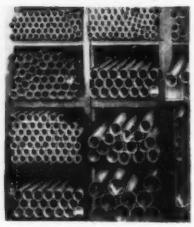

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ELIZABETH, N. J. McKEESPORT, PA.

7221

ordinated debentures, due to be sold in January. About $60 million will be used in expansion, the rest going to retire present short-term loans.

•

Goodyear Tire & Rubber has negotiated a $100 million stand-by credit with a group of banks. The money would be available during the next five years, though the company says that it does not actually feel that it will need to use it. Uses? "General corporate purposes."

FOREIGN . . . . .

Polyethylene/Italy: Montecatini will begin production of polyethylene next month at a plant in Ferrara which cost the equivalent of $18-20 million. Production will be primarily for domestic consumption; previously polyethylene had been imported, but apparently not in sufficient quantities to supply the demand.

•

Phthalic Anhydride/Brazil: First phthalic production in Brazil is planned by a Sao Paulo company, Produtos Quimicos Elekeirosz. It will use naphthalene produced by the Cia. Siderurgica Nacional at Volta Redonda. Present Brazilian importation of the material is about 600 tons/year.

•

Aluminum/Aluminium Ltd.: The company has begun production of bauxite on Kassa Island, just off the cost of French Guinea, French West Africa. It will mine the material at a 300,000 ton/year rate. First shipments are going to the company's Arvida, P.Q.

• The company has established a bauxite-purifying unit on Jamaica, B.W.I. Purified alumina will be shipped to Kitimat, British Columbia, for reduction to aluminum.

• A management agreement has been signed which allows the company to invest 50% in the Japanese Nippon Light Metals Co., aluminum producer. Total investment is estimated at $3.8 million.

Aluminium will supply the Japanese firm with knowhow and raw materials.

•

Ammonia/Colombia: The government is considering establishing a $10 million plant to make ammonia and urea for fertilizers. The plant (scheduled to make 50 tons of ammonia and 75 tons of urea daily) would be located at Barrancabermeja, close to the Magdalena River oil fields. Natural gas for the project would come from these fields, which have been under government control for just over a year.

•

Titanium Dioxide/Japan: Glidden

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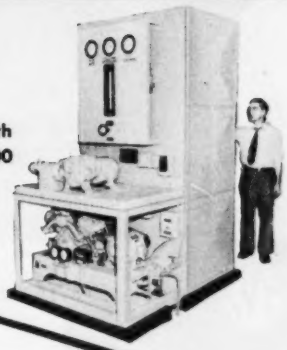

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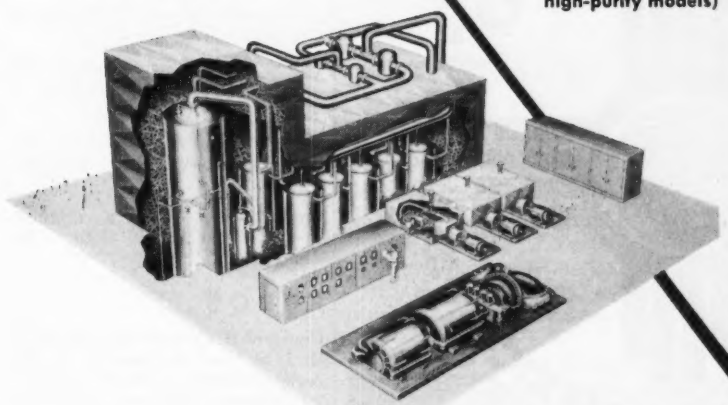

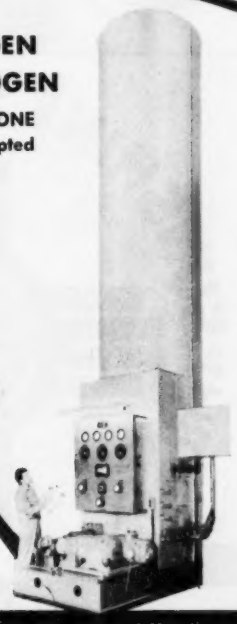

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Corp. and the Japanese Ishihara (Sangyo) Industrial Co. have signed contract under which Glidden will aid in setting up a plant to make 500 tons of titanium dioxide pigments monthly. It will receive a royalty on production, plus a $100,000 investment in Ishihara stock shares.

•

Minerals/Uganda: Monsanto Chemicals (Ltd.) has joined with three mineral development firms—Rio Tinto, Frobisher Limited of Canada and the Uganda Development Corp.—in a new company, Tororo Exploration Co., Ltd. The company will explore deposits of phosphate ores and of niobium, zirconium and iron near Tororo, Uganda. Key to processing any mineable ores and minerals will be the availability of electric power from the Owen Falls hydro-electric plant.

KEY CHANGES . .

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Theodore Weicker: To president, E. R. Squibb & Sons, division of Mathieson Chemical Corp., Baltimore, Md.

William A. Thawley: To general sales manager, New York Quinine and Chemical Works, New York, N.Y.

Russell Hopkinson: To vice-president, director of drug and pharmaceutical divisions, Mathieson Chemical Corp.

A. Carswell: To board of directors, St. Regis Paper Co., New York, N.Y.

Carl F. Prutton: To president, Mathieson Development Co., division of Mathieson Chemical Co.

Dwight Richards: To director of engineering, Oliver United Filters Inc., New York, N.Y.

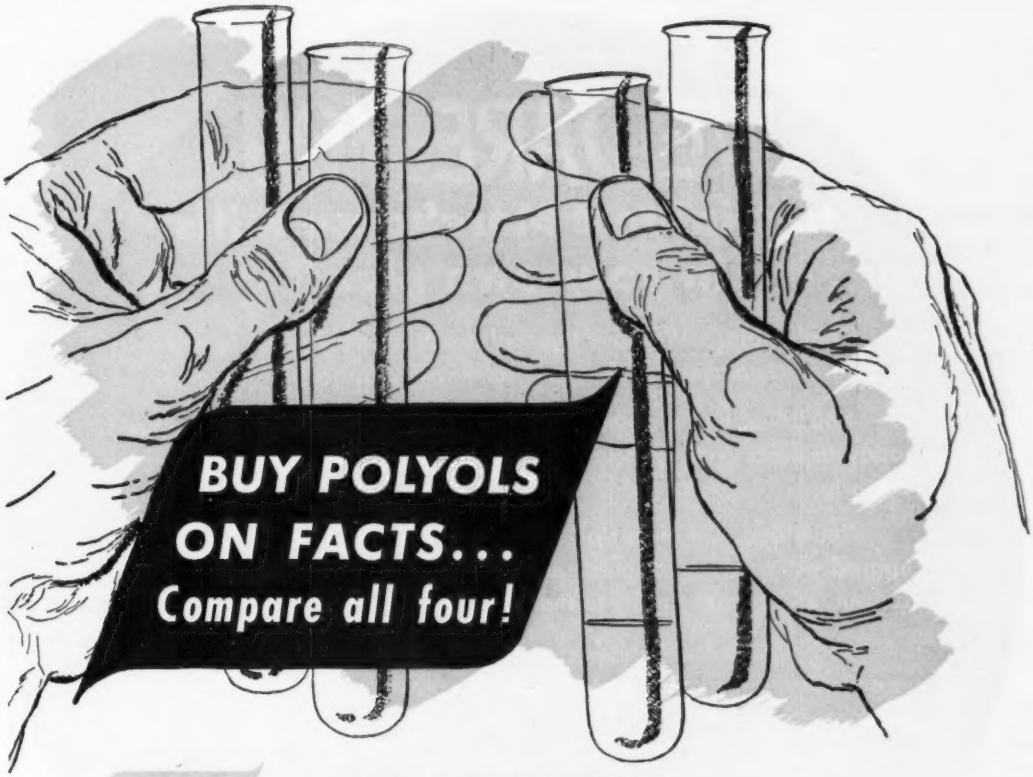
Fred C. Grant: To general sales manager, Crown Chemical Corp., Providence, R.I.

KUDOS . . . . . .

Crawford H. Greenewalt: President of E. I. du Pont de Nemours & Co., American Section of Society of Chemical Industry's 1952 medal and Wharton Alumni Society's Gold Medal of Merit Award.

Everett G. McDonough: Vice-president and general manager, Evans Research and Development Corp., Society of Cosmetic Chemists' Medal Award for 1952.

Eger V. Murphree: President, Standard Oil Development Co., Industrial Research Institute Medal for 1953.



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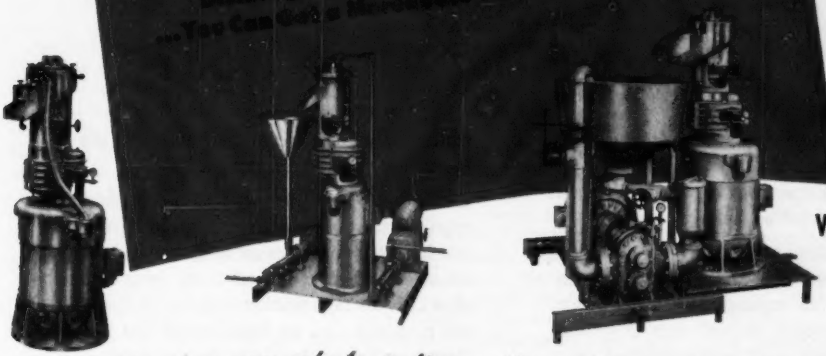

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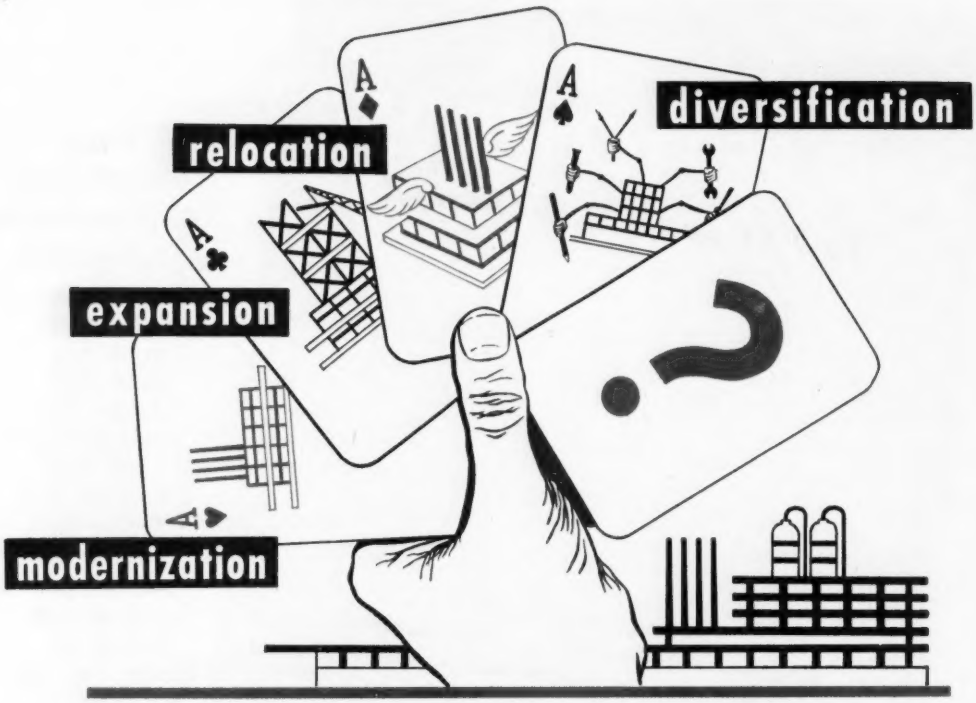

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Should You Invest in Foreign Research?

★ *It costs less . . .*
★ *High-grade talent is available . . .*
★ *Blocked funds can be put to work . . .*
★ *Intimate contact with foreign industrial science is assured . . .*

BUT

. . . returns are slower.
. . . certain equipment is scarce.
. . . nationalism is a potential threat.
. . . supervision and the language can be problems.

It may be news to you that there's a growing tendency on the part of American industry to do at least a part of its research in other countries. On the surface, it's hard to call a full-blown trend; only a handful of companies have gone on record as now sponsoring or seriously considering the possibility of sponsoring foreign research. But there's a lot more going on than meets the eye.

Reasons for this latter-day awakening to the opportunities of foreign research—European research in particular—are as basic and as sound as the profit motive: It costs a lot less. American industry can procure research talent and facilities in Europe for a third to a half of what they cost in this country.

And it's not inferior merchandise: European industrial science has made a surprising recovery. The consensus among those who have had a first-hand look in recent months is that European researchers, in general, are as good as their American counterparts. Much the same holds true for basic laboratory equipment. Because of comparatively cheap common and skilled labor, items like hand-made laboratory benches and sinks may be had for appreciably less than factory-made products in the U.S.

What this means, in terms of cold cash, is ventured by J. E. Hobson, director of Stanford Research Institute. Hobson has personally inspected conditions in Germany, Austria and Italy, estimates that $500 a month would—in some cases—support an Italian scientist, his staff and facilities.

Aside from straight dollar-and-cents logic, several other important factors are working for more overseas research. Contrary to some considered opinion, the scarcity of certain types of scientific and engineering personnel is not the least of these. Then, too, research in a foreign country can provide a productive outlet for frozen funds derived from foreign trade.

There's another aspect, one that fits in with MSA and Point Four efforts to bolster the resistance to communism of the free world. Stanford's Hobson considers foreign research investments a "technical assistance program in its best form." His reasons are compelling: Such investments make for mutual respect; charity is not involved—foreign nations know full well that their private scientific organizations will have to compete for overseas contracts, won't continue to receive American business if they don't produce.

Two-Way Deal: As might be expected, Uncle Sam isn't the only beneficiary of overseas research investment. The nations involved have much to gain. First, perhaps foremost, they are on the receiving end of transactions in American dollars. And it provides a golden opportunity for expansion and improvement of scientific capacity and know-how. Last, but not least, development of young scientists and technicians—largely held back by lack of demand—is accelerated.

The idea of utilizing foreign research talent is hardly new in itself. Prior to the advent of conditions which set the stage for actual American sponsorship of research in other countries, two general methods were in force. Both have serious drawbacks. Under the first, well-known foreign scientists were brought to this country. The disadvantages of this procedure are twofold: The scientist must reorient himself to a new life, at the expense of his operating efficiency; and his departure is a decided and often irreplacable loss of a valuable national asset.

Outright purchase of a particular industrial development was perhaps a more popular means of getting in on foreign scientific progress. But such a package deal rarely reaches the production stage in smooth fashion. Technical and engineering problems, that could best be overcome by the inventor, invariably crop up.

No Panacea: Sponsorship of research in foreign lands is not a made-to-order panacea. It neatly gets around the problems of transplanted talent and the package deal. But it comes replete with its own set of pitfalls: Supervision is complicated by the long distances involved; the return on the research dollar is slower; language is a potential barrier; certain equipment, especially electronic, is scarce or inferior; hostility to Americans (and foreigners in general) is a problem in some places; and there are marked weaknesses in certain fields of industrial research.

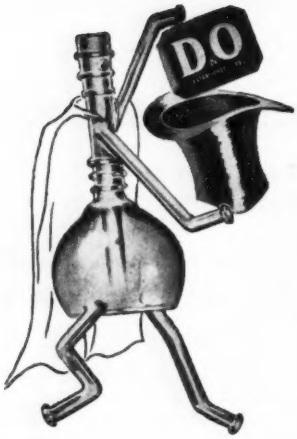
The decision to initiate a foreign research program and the choice of a location or organization to carry it through hinge—in the final analysis—on a careful weighing of all of these somewhat unique factors. But overseas research is being done—and successfully. An outstanding case in point is the Italian activities of Corn Products Refining Co. Research Director A. R. Elder put the program on its feet three years ago, says he's happy with the set-up, has no serious problems with it.

One of the big factors that influenced Corn Products Refining was the growing scarcity of research people in this country. The company had a plant in Italy, was not wholly unfamiliar with the country. Here's how they proceeded: Elder went to Italy a little over three years ago, laid out a laboratory and staffed it with Italian researchers.

An American assistant then took over, supervised the lab for a year and a half, chose an Italian researcher for the job at the end of that time. The Italian supervisor was later brought to the U.S., indoctrinated in company policy, American research techniques, etc. Elder keeps in continuous touch with the laboratory by air mail, pays a visit once a year to chart future operations, exchange ideas.

He reports no language problem (most Italian scientists speak English), finds it easy to get most chemicals and equipment.

The Right Attitude: Most companies, however, do not have established foreign subsidiaries, would find it considerably more difficult to locate their overseas research operations. In



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broad terms, here's how the various countries shape up:

Italy perhaps, presents the best opportunities. It boasts one of the most favorable currency exchange ratios, an abundance of good research people now unemployed or doing other work. Italian laboratories are strong in chemical processing, textiles and fibers, electronics, electrical design and development, and geophysics. They have their weaknesses, of course—notably ceramics, metallurgy and petroleum chemistry.

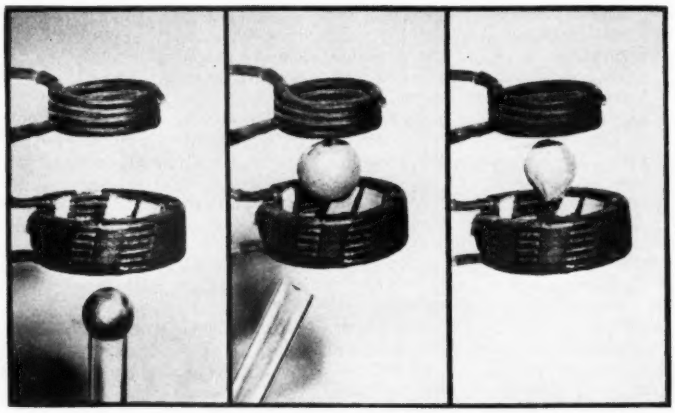
But the most important reason, says Stanford's Hobson, is that Italian scientists have "the right attitude." He reports that they are eager for applied research, will work on a confidential basis and assign complete patent protection to sponsors.

Western Germany, on the strength of its scientific manpower quality and resources, is a fair second. Another favorable factor is the presence of a substantial portion of Western Germany's scientific potential in the U.S. occupation zone. But all of this is partly offset by a lack of facilities available for American research investment. Universities are the traditional leaders in German scientific research, give little attention to industrial application of their findings. And the great bulk of industrial research laboratories are maintained by large companies. Medium and small outfits just don't do research, have no independent or commercial research organizations to turn to.

Time for a Change: This unfavorable situation, however, is due for a revamping. Taking the lead in the corrective effort is Battelle Memorial Institute (Columbus, Ohio). Last week Battelle laid the cornerstone for a new research center at Frankfurt, revealed plans for another center at Geneva, Switzerland. The Frankfurt laboratories will do chemical, metallurgical and engineering research, will serve European industry and American firms in Europe.

Battelle states that it will staff its European laboratories with native scientists and technicians; American personnel will be used for administrative and liaison functions.

Much the same situation that now obtains in Germany prevails in most other Western European nations. Belgium, France, England and Switzerland all offer possibilities for American research capital. But comparatively (with Italy, for example) high standards of living and currency exchange ratios in most cases sharply reduce the economic appeal of such



Mid-Air Melt for Purity

THE NEWEST ANSWER to the time-honored metallurgical puzzler—how to get the perfect pure melt—comes from the laboratories of Westinghouse Electric Corp. Westinghouse researchers have developed an electromagnetic device which fuses a lump of metal in mid-air (or mid-vacuum), precludes contamination from a crucible.

The technique works essentially like this: A ball of aluminum is inserted (*left*), with a glass tube, into the magnetic field created by the two electrical coils. The tube is removed, leaving the metal suspended (*center*) in the magnetic field which heats it to a glow and finally to a melt (*right*). The system, now being refined, will be demonstrated at the forthcoming (Nov. 11) Cleveland meeting of the Electrochemical Society.

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VAPOR PRESSURE of BCl_3

Temperature °C	Temperature °F	Pressure mmHg. (Abs)	Pressure P.s.i. (gage)
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—30°	—22°	116	—
—15°	5°	251	—
0°	32°	477	—
12.5°	54.5°	760	0
20°	68°	1198	4.4
30°	86°	1368	11.8
40°	104°	1824	20.6
50°	122°	2432	32.3
60°	140°	3192	47.0
70°	158°	4104	64.7
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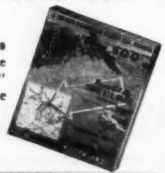

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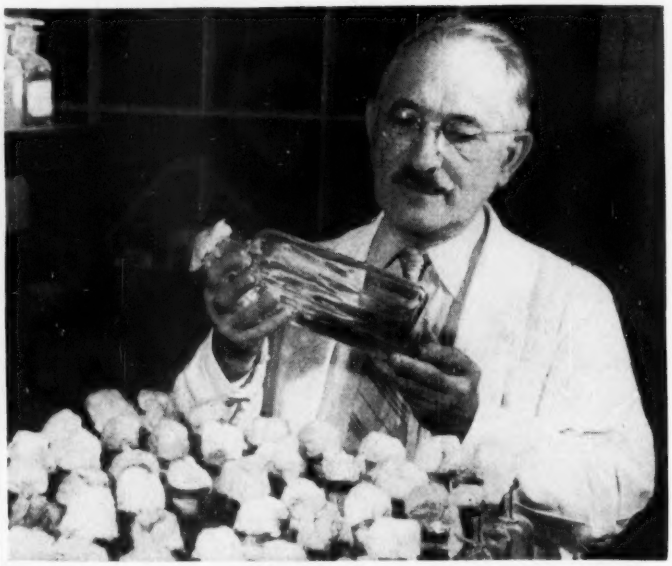

WIDE WORLD

Date with Royalty

SELMAN A. WAKSMAN, winner of the 1952 Nobel Prize in medicine for his co-discovery of streptomycin, keeps busy in his laboratory at Rutgers University's Institute of Microbiology. Waksman, director of the Institute, will accept the award, $33,037, from the King of Sweden in Stockholm, Dec. 10. This year's medical prize is the fifteenth to go to an American.

investment. In Austria, however, it's the political climate that discourages an influx of American dollars.

Who is doing what, is the stickler. Companies with sizable foreign subsidiaries appear to support the bulk of overseas research. And the independent institutes and private consulting firms are taking an active hand in foreign research development: Representatives of Southwest Research Institute, Stanford Research Institute, Battelle Memorial and Armour Research Foundation participated in an ECA mission last year which underscored the need for more German industrial research facilities; R. S. Aries & Associates is one consulting organization that is now making use of German scientific brain-power.

But there's considerable off-the-record activity that would doubtless figure prominently into a thorough estimate of the situation. "Should you invest in foreign research?" apparently is a question which not a few industrial research managers have already asked themselves.

•

Paint Aid: Canadian Industries Ltd. officially took the wraps off its new paint and varnish research laboratory last week. The new lab, at York Township (north of Toronto), employs 60, will be concerned with automotive and household specialties in addition to its indicated scope of activity.

•

Welcome Arrival: A custom-built, five-ton structure of lead and concrete welcomed its first occupant—an ounce and a half of radioactive cobalt 60—last week at Battelle Memorial Institute (Columbus, Ohio). The material gives off radiations equal in penetrating power to those of a 2 million-electron-volt X-ray machine. It will be used, in the words of a Battelle spokesman, as a tool for conducting studies "extremely difficult or impractical before because of the lengthy periods of radiation necessary with other available radioactive materials."

•

Emphasis on Aluminum: Kaiser Aluminum and Chemical Corp. has recently formed an electrical research department at its Trentwood plant near Spokane, Wash. Object: to develop new uses of aluminum as an electrical conductor.

•

Capacity for Cold: A new low-temperature laboratory is the latest addition

Do You Know WHY? BY Dr. Q

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RESEARCH . . . . . .

to the facilities of National Bureau of Standards. The laboratory cost more than $2 million, employs 60, can produce 320 liters of liquid nitrogen an hour and 400 liters of liquid hydrogen an hour.

•

Coming Up: New investigations into the manufacture of sugar from wood waste are planned by Tennessee Valley Authority and USDA's Forest Products Laboratory. TVA, in cooperation with FPL, recently completed three years' pilot-plant tests of the sulfuric acid method of converting mill waste to sugar. About 10,000 gallons of wood molasses (50% sugar) were produced for livestock feeding tests; yield averaged approximately 218 gallons per cord of dry wood.

TVA claims, on the basis of pilot-plant costs, that the molasses could have competed with blackstrap during eight of the past ten years. Upcoming studies will be concentrated on the use of sodium fluoride (instead of sulfuric acid) as the hydrolyzing agent.

•

Atomic Shift: Thomas A. Reed, Columbia University metallurgist, is the discoverer of what has been dubbed "the metal with a memory." It's an alloy of gold and cadmium that is easily bent when cold, but which always returns to its original shape upon heating to 150 F. Reed claims that a shift of atoms in the crystalline structure of the alloy is responsible for the quirk. He's now looking for applications for his brainchild.

•

New Rubber Entry: Vulcollan, Bayer's (Leverkusen) new synthetic rubber, was formally unveiled at the recent German plastics fair. According to Bayer, the new synthetic is easily molded, has proved superior to natural rubber and Buna for shoe heels, cable insulation and automobile tires. Cost has not yet been revealed.

•

Designed for Records: Naval Research Laboratory researchers are credited with the development of a new, highly sensitive electrochemical recording paper. It's called ECR paper, relies on benzidine for its marking characteristics. The new paper is applicable to conventional electrochemical recorders which make use of a stylus anode. A flow of current brings up blue lines on a light buff background. ECR paper has shown no tendency to fade, even when stored at 85 F in an atmosphere of 100% relative humidity. But it also has its weak points. Example: It requires chemically inert stylus materials; steel and silver, among others, aren't any good.

BAGPAK

...basic in multiwall paper bags*

With its 17,000,000 acres of scientifically-managed woodlands, [illegible] pulp, paper and board mills — another [illegible] plants devoted exclusively to products for modern packaging — with these, the International Paper Company and its affiliated companies serve as a vast storehouse of raw materials, facilities and "know-how" for the quality production of Bagpak Multiwall Paper Shipping Bags.

Bagpak also handles the Clevepak Machines. For [illegible] and machines write to Bagpak Division, International Paper Company, 220 East 42nd St., New York 17, Dept. K-8.

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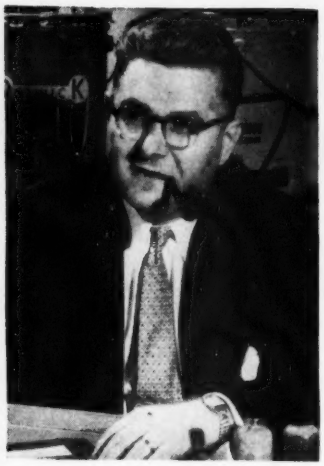
PLANNING to use C.A.L., customer meets with Sales Manager Joseph Fuld.



POSSIBLE DESIGNS for product are reviewed by Ad Manager Jerry Cohen.

PLATE PROCESSING fluids get check from Chemist Broll, Pres. Mel Fuld.

Eyecatching Packaging: Low-Cost, Colorful

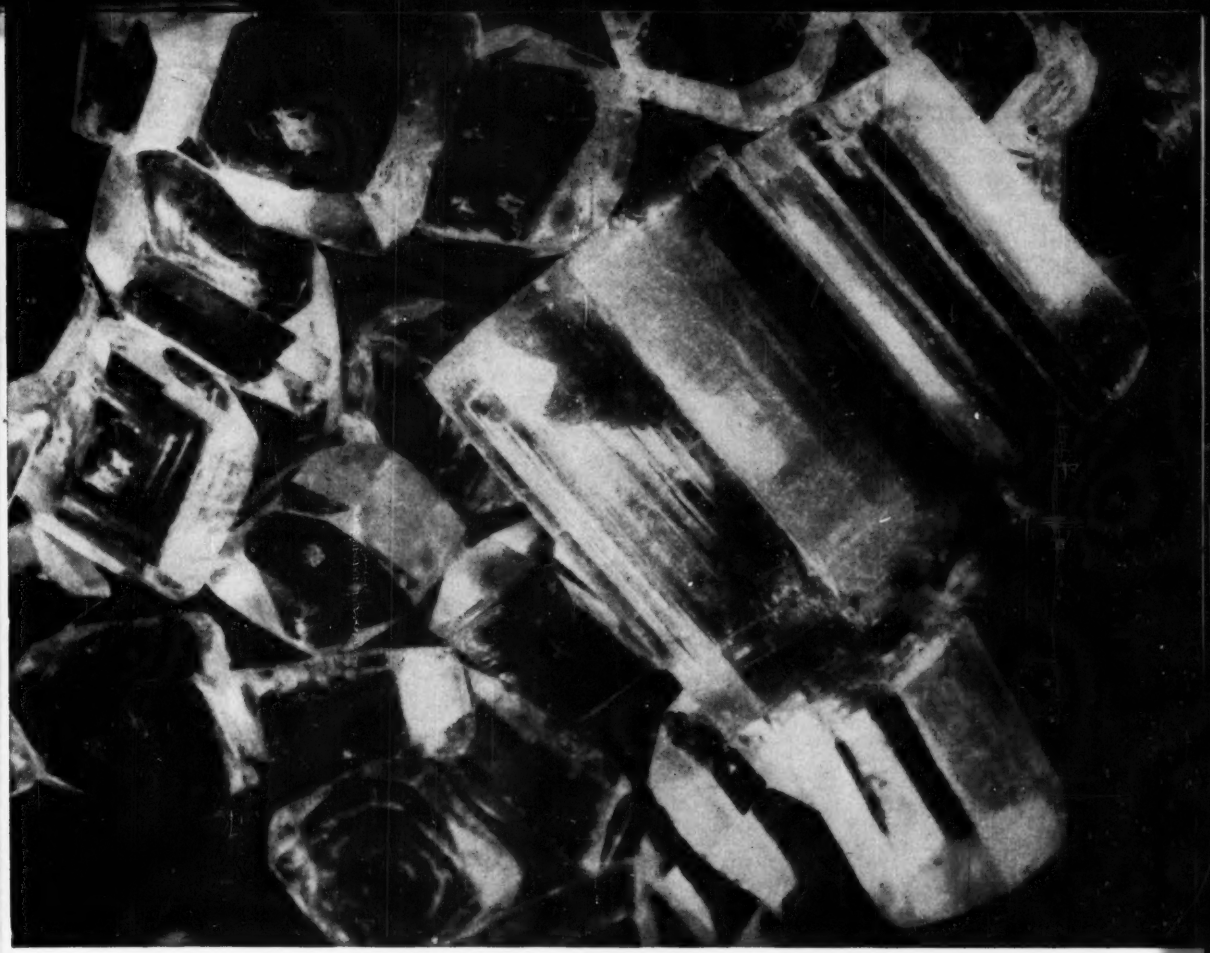
Maintenance specialty makers and jobbers picked up their ears recently at the news that Fuld Brothers, Inc. (Baltimore) planned to make its new Color Affect-Lithography (C.A.L.) process available on its private-label supplies (*CW Newsletter, Oct. 11*).

Applicable to many of the metal and glass containers used for specialty packaging, from 4-oz. bottles to 55-gal. drums, the process permits lithographic decoration in small runs—at low prices. Batches of a few hundred can be C.A.L.'d at a price to jobbers Fuld eventually hopes to pull down to match paper labeling.

This week the CW camera tours the Fuld C.A.L. processing set-up, shows how small jobber orders are put up in the attractive units vital to competitive merchandising.

Plus Side: Fuld Brothers originally developed C.A.L. for its own products. But since it handles some 240 products to sell to private-label jobbers, it is close to the problems of the resale dealer. Feeling that lack of durable, attractive packaging retarded sales of its customers' products, Fuld Brothers found in C.A.L. an economi-

INK IS BAKED on bottles in lyre (left). They are inspected, passed on to filling equipment. On center line, filled units are inspected, go next to girl who caps bottles. From here, the bottles go to packers and then on to the distributor.



LINDANE

Put LINDANE first on your list as a killer for a host of household insects. This practically odorless insecticide kills *three* ways—by vapor, contact and stomach action. LINDANE is easy on the hands and skin, can be used where food is handled (U. S. Food Drug Acceptance), and will not harm rugs, curtains or similar materials. Economical LINDANE goes to work as soon as applied —and *continues* to kill because of its good residual action.

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LINDANE, the effective multi-purpose insecticide containing 99% gamma isomer of benzene hexachloride is now available in commercial quantities. LINDANE, together with KOLKER high gamma BHC technical, now offer manufacturers basic BHC materials easily handled and readily formulated into high-quality finished insecticides.

DIAMOND ALKALI COMPANY

Chemicals you live by

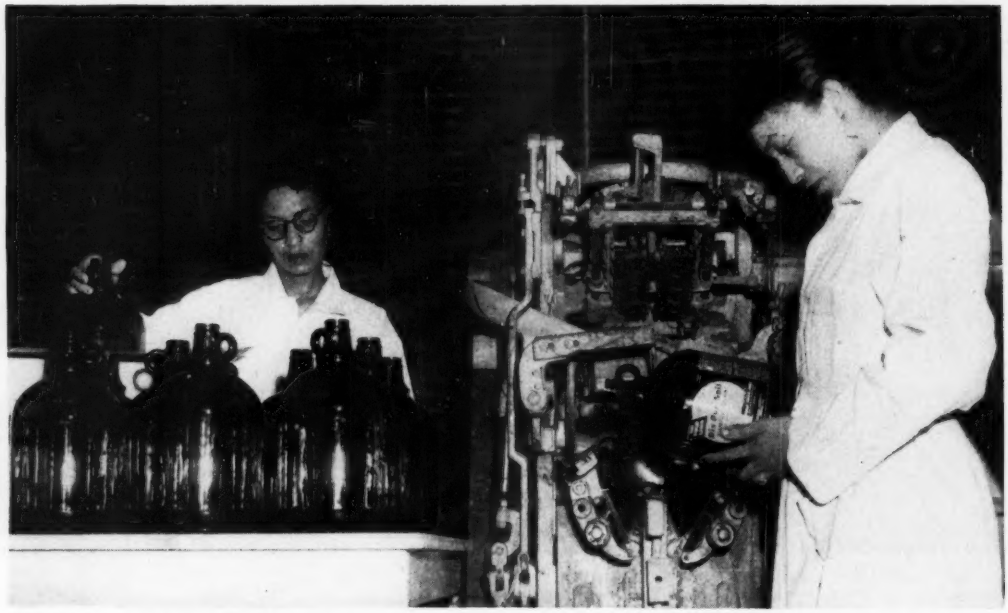
cal way to lithograph the less-than-a-thousand quantities its customers ordered.

C.A.L.'d units are colorful, the labels don't soak off when wet, and don't streak or smear. The Fuld program permits the jobber to have a custom label (at extra cost, for first plates only) or select a stock Fuld design.

The prime advantage is the low, small-run cost. Ordinarily, most cans are lithographed in the flat, before the cans are fabricated, and plate cost makes runs less than 2,500 hardly worthwhile. Fuld Brothers seems to have licked the cost problem, and indications are that customers are discovering boosted sales.

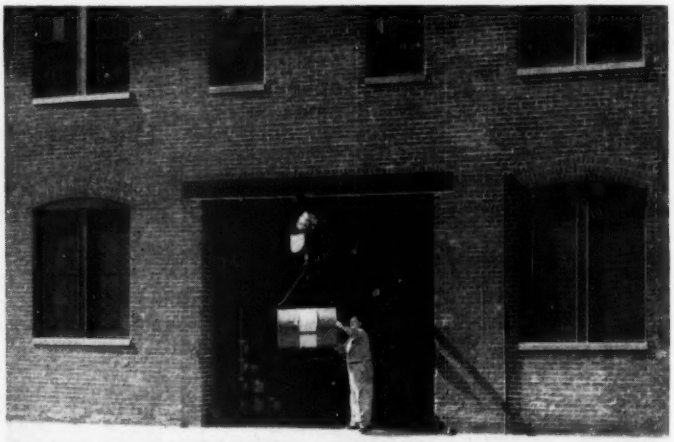
Tailor Made: Originally, Fuld Brothers tried standard lithographing equipment, but plate-making costs were too high, and inks weren't up to snuff. Melvin Fuld, his son George, and Plant Engineer William Duer eventually got rid of the bugs.

Initial interest has been so marked in the past few weeks that Fuld has put plans in gear to permit non-competing firms to use the process.



GALLON jugs are hand processed; next step for bottles is baking lyre. Fuld Brothers has had to develop its own machines to handle wide variety of container sizes, still permit quick, economical changing of the plates for small runs.

PROTECTIVE SKIRTS minimize scratched designs on C.A.L.'d drums.



READY FOR SHIPMENT, drums and bottles are warehoused. Fuld devotes more than 40,000 sq. ft. to recently expanded C.A.L. processing facilities.

Formula for profitable chemical production

SALT (Na Cl)

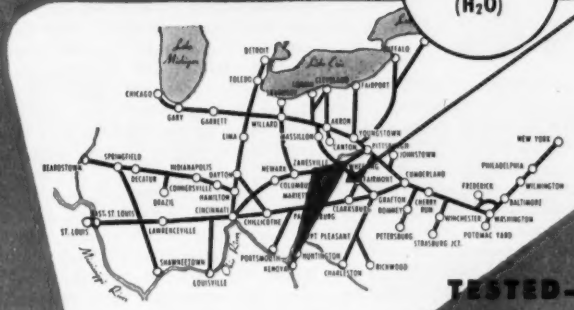
POWER

COAL BITUMINOUS

LABOR

TRANS-POR-TATION

WATER (H_2O)



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SAGE LAB'S SAGE: Specializing on specialties for the housewife.

Hitching to Chains

Quick to capitalize on the booming success of supermarkets, the postwar merchandising wonders, has been Sage Laboratories, Inc. (New York). The firm's entire line of chemical specialties has been designed for the grocery giants.

But concentrating on a fast-growing outlet hasn't been the only secret of the eight-year-old firm's success. New products have put the company on its feet, kept competition on its toes.

Recently patented and soon to be introduced is a novel dishwashing aid: a plastic synthetic detergent cake holder which can be attached to the faucet, gives the housewife sudsy dishwater directly from the tap and, at the twist of a valve, clear rinse water.

The trend toward supermarkets has been used to advantage by a number of firms. More and more specialty items, from laundry products and household disinfectants to health and beauty aids, are being distributed by the big stores.

The term "health and beauty aids" is indicative of the change—products, not precisely cosmetics, which were once almost exclusively the property of drug stores, are finding their way into supermarkets. Already an estimated 25% of toothpaste is sold in the grocery chains. Sage is in the van here, too, with its recently introduced polyethylene-packaged line of shampoo, after-shave lotion, and four related products.

Freshener First: The product that launched Sage Laboratories in the supermarket field (president Maurice Sage, long connected with Van Ameringen-Haebler and Carbide and Carbon Chemicals Co., still maintains his consulting business) was a wick-type air freshener.

This has been followed by other household specialties—plastic starch, polyethylene-packaged disinfectants, and one of the first powdered bleaches, all made in the Sage plant in Brooklyn.

Close to 15% of U.S. toilet goods (not soaps) is already sold in the supermarkets; Sage figures it has latched onto a prime, still-growing distributor. And in addition to its new detergent sudsmaker, at least two other household specialties will be on the store shelves before long.

Push for Sales

Carnauba wax sellers, already hit by the swing to shellac in no-rub floor polishes and inroads of other substitutes and extenders in this and other applications, are in for increasing competition from German-made products. Last week, Guido Von Rosenberg, director of application research for Lech Chemie, Germany, was calling on U.S. formulators who are users or potential users of Lech's Gersthofen (formerly I. G.) waxes.

These products, introduced before the war, returned to the U.S. market several years ago, but this is the first time the producer has sent a technical service man here. Behind this stepped-up activity is the Brazilian Government-supported price of carnauba (up to $1.25/lb. for some grades) that has forced many users to switch from it, and the availability of large quantities of the Gersthofens at substantially lower prices (average price about 65¢/lb.).

Wax & Rosin Products, New York importer distributing the products, says that last year it brought in about one million pounds and that of quantities it sold, this was the approximate distribution: shoe polish (40%); no-rub floor polish (35%) and carbon paper (25%). Lech's capacity is said to be 500 tons per month, of which about 40% is used in Western Germany, the remainder exported.

Although a number of American manufacturers are already using the materials, Von Rosenberg says some have run into formulation difficulties because they use anionic emulsifiers. The Germans find that non-ionic types work better. Another bar to increased use: U.S. formulators are not eager to develop formulations that require a material that would be cut off in time of war; they prefer to stick to U.S. replacements for natural waxes.

Should Von Rosenberg's trip result in substantial increase in use of these montan-derived products, American refiners of vegetable waxes and manufacturers of petroleum-based and synthetic substitutes, may berate the Tariff Commission. Reason: These products come in duty-free as mineral waxes, yet they are the result of extensive chemical processing of crude montan.

•

Isoniazid in Vein: E. R. Squibb & Sons has introduced one of the first injectable forms of Isoniazid, Nydrazid Injection, for treatment of tuberculosis.

•

Watershedder: First retail specialty for Spickelmier Products Co. (Chicago) will be an aerosol-packed water repellent tabbed Dri. A formulation of waxes in carbon tetrachloride with Freon, it is essentially the Camelo Spickemier has been selling for twenty years. The 12-oz. aerosol sells for $1.79, can be used on clothing, shoes, and the like.

•

No Toasty Loaves: Vermiculite, which was last making news as a soil conditioner, has been put to work in bakeries. In commercial bakeries, every time the bread-baking machines are halted for a few minutes, excess heat builds up in the ovens. First bread loaves to go in come out scorched. A Canadian shop has solved the problem—send ten bread pans filled with water-soaked vermiculite ahead of the new batch. Zonolite Co. (Chicago) supplies the mineral.

•

Phosphate Line: Turco Products, Inc. (Los Angeles) has a new line of phosphating materials, designed to meet government specifications. Products are Turcoat 3540, for iron, steel, and zinc; Turcoat 3520, 3420, and 3557 for iron and steel in various end uses.

•

New Firm: Pro-Nyl Chemicals, Inc., Salisbury, N.C., has been organized recently, to produce and distribute chemicals. Pro-Nyl is capitalized at $100,000.

•

To Sell Ammonia: Just chartered in Kentucky, capitalized at $75,000, is the Elizabethtown Anhydrous Ammonia Co.

•

Foam Home: The Lux Foam Rubber Co., Ashtabula, O., which was burned out in a $75,000 fire last August will be back in production shortly in another plant. The firm, making rubber pillows and toys, will be renamed the Foam Rubber Co.

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Put this useful wax to the test. It differs from tristearin in this respect: 85% of its fatty acid groups have the hydroxyl group characteristic of castor oil. Check it for its numerous production advantages.

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FLAKE—Very useful in hot melts, as a lubricant in drawing or rolling metals, in the manufacture of metallic soaps for greases, in paper coatings, as a water proofing agent, et cetera.

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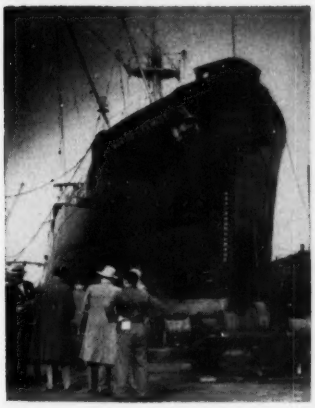


Ship-Bottom Salesmen

DIVERSIFICATION is the hallmark of today's chemical growth—and that means diversified selling for the industry's salesmen. This is a facet of the chemical-distribution picture which was clearly evident last week as Dow Chemical salesmen conducted a group of prospects through Bethlehem Steel's Brooklyn shipyard. Their mission: to show off the corrosion-free bottom of the *Marine Chemist*—Dow's chartered chemical tanker.

The visitors, representing industrial shipbuilding and operating organizations, plus a sprinkling of Navy brass, were there to inspect the first application of magnesium anodes as a means of controlling the underwater corrosion of an entire ocean-going ship bottom. The theory is that most such metal destruction takes place because the seawater acts as an electroylte in setting up miniature batteries along the hull. The magnesium acts as an expendable anode, thus saving the steel plates of the ship itself.

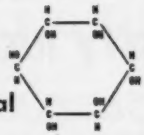
To prove its point, Dow installed 106 magnesium castings, each weighing sixty pounds, along the line of the bilge keel on each side of the *Chemist*. During the year that followed, periodic inspections were made by divers. They reported that the protection seemed to be working.

The latest of these partial evaluations took place in September at Freeport, Texas. But the critical test was to be the close inspection given the whole hull when the ship was put in drydock at Brooklyn last week. This would make an ideal moment for a sales pitch—if the divers' reports had been accurate. Since the *Chemist* would be out of the water for only one day, it would be impossible for the Dow men to take a quick look first, and then call in the potential customers. Instead, they had to cross their fingers and hope for the best.

The consensus of those who gathered under the keel plates: Dow had won its promotional gamble.

Facts You Should Know about INOSITOL

—an Important Biochemical



Inositol, known for more than a century as a common constituent of living matter, has only recently been established as an important biochemical compound. Its molecular configuration has been established, the nature of its occurrence in animal tissues has been clarified, and it has generally been accepted as a member of the vitamin-B complex. Also recognized is its importance in the regulation of fat and cholesterol metabolism. Inositol shows remarkable possibilities as an agent for the treatment of certain pathological conditions in man. The precise nature of its biochemical role now is up to chemical research.

Inositol is a hexahydroxycyclohexane, supplied as an odorless, slightly sweet, white crystalline powder with a melting point at 225°C. Soluble in water, slightly soluble in alcohol, it is practically insoluble in oils and organic solvents. A comprehensive review of the literature on the biochemistry of Inositol is available upon request.

Chemical Division

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What's behind new interest in fatty alcohols?

Not so long ago a chemist who wished to put the valuable properties of fatty alcohols to work was thwarted by the rather high cost of good grades. Happily, this is no longer the case. For CACHALOT brand fatty alcohols, which have been meeting high specifications for over twenty years, are today priced low enough to please the most cautious purchasing agent. *Your* chemists probably have ideas on how to put straight-chain alcohols to profitable uses as esters, aldehydes, chlorinates, emulsifiers, penetrants, intermediates. Why not have them look into CACHALOT cetyl, oleyl, and stearyl alcohols? For a descriptive booklet, just write M. Michel and Company, Inc., 90 Broad Street, New York 4, N. Y. Basic suppliers to chemical manufacturers for a quarter century, their trade name for the best fatty alcohols is

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ERICSSON: "Diagnosis, instruction, and prescription."

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Best Foot Forward

The purpose of this organization shall be:

A **To increase selling efficiency and to foster . . . the highest sales ethics.**

B **To encourage wider aquaintance among those engaged in sales . . . and to foster good fellowship among its members . . .**

(SAACI Constitution and By-laws)

Thus expressed are the goals set forth by the founders of the chemical industries' largest group of self-styled "peddlers"—the 750-man Salesmen's Association of the American Chemical Industry, Inc. Last week, with barely an audible clashing of gears, but with a multitude of proudly smiling faces, the SAACI shifted its emphasis from *B* to *A*. In the future, "ethics" and "efficiency" will receive equal billing with "fellowship" and fun.

The occasion for this historic shift: The first annual Chemical Sales Clinic sponsored by the association. The New York clinic bids well to join the nationally renowned SAACI year-end party* as a memorable annual occasion for those engaged in the commerce of chemicals. Incidentally, this year's association president, Dow Chemical's Ed Bush, is the son of the group's first president, Burton T. Bush, who took office in 1921.

Sales Prescription: Nearly three hundred salesmen, members, visitors, and students, crowded into Manhattan's Hotel Commodore for the all-day affair. Registrations indicated that they had come from all parts of the Eastern Seaboard and Midwest. The only mar on the day's proceedings was the news that SAACI past-president (1936) Jack Leppart, executive v.p. of Mathieson Chemical, would be unable to fill his spot as banquet speaker. With smooth aplomb, moderator Ralf Ericsson (Sumner Chemical) shifted McGraw-Hill's Sid Kirkpatrick from the afternoon session into the vacant position. The hitch was hardly noticed.

Ericsson, in many other ways, kept the tempo of the clinic running at an interest-holding pace. His opening remarks set the stage for the other speeches; he explained why the association had picked the word "clinic" in describing the affair. "In medical terminology," he pointed out, "a clinic is often a gathering of students at a patient's bedside for purposes of in-

* Famed for its uninhibited souvenir booklet, the "Chemical Peddler."

TWISS: "Where advertising ends and selling begins . . ."

MURPHY: Reducing prices . . . reduces production costs.

structing the students as well as treating the patient. It is also a place where the ill may consult with a group of specialists . . . We hope that this day will make a beginning at all of these functions: diagnosis, instruction, and prescription."

In Ericsson's mind, the patient to be treated by the Sales Clinic was not only the industry's sales policies—or the salesmen who implemented those policies. Also included is the public attitude toward selling as a profession. He expressed the belief that doctors, lawyers, and other "professional" people have gained their present stature largely through their own vigorous attempts at self-policing and self-education. The selling profession must also exhibit an equally avid desire for knowledge—not just knowledge of the product, but also a knowledge of selling fundamentals. This would act as a double-acting prescription, helping both the salesmen as individuals and raising the level of their occupational group.

Pride and Jeopardy: Editors Walter Murphy (ACS) and Sid Kirkpatrick, in the luncheon and banquet speeches, underlined the importance, as well as the difficulties of chemical selling. Quoting extensively from a prize-winning essay on salesmanship written by his son, Murphy summarized what he considered to be the single theme of chemical sales: "Reduce prices, thereby increasing consumption, thereby increasing production, thereby lowering production costs." He felt that it was the duty of the chemical sales fraternity to keep this beneficial circle of cause-and-effect whirling at high speed.

Kirkpatrick aimed his remarks at the individual salesman. He commented that those who are engaged in chemical selling are subject to "double jeopardy." They are judged by the double standards of competence in technology as well as in the science of salesmanship. Concluding that "a new profession of chemical salesmanship is in the making," he stressed that an individual could sucessfully lead this double life only by constantly training himself along both lines of endeavor. "He will have to keep abreast of developments in his selected field of science and technology; at the same time he will have to develop to the fullest extent his abilities in the persuasive art of salesmanship."

Techniques and Tools: The morning session of the clinic was devoted to the "how" of salesmanship. The afternoon covered the "tools" whereby selling was accomplished.

The opening shot of this comprehensive barrage was a talk by Bert Cremers (v.p. of the Michigan Alkali Div., Wyandotte Chemicals Corp.) on the subject of selling heavy chemicals. Speaking frankly, he admitted that his sales force had not yet had a chance to prove itself. "It has taken me twelve years to develop my sales organization. How well I've done it . . . can only be measured when my gang has had its trial by fire—under the actual field conditions of red-hot competition in the approaching buyers' market."

Looking ahead, Cremers has been preaching the "fundamentals of selling" to his men. It is his belief that even heavy-chemical salesmanship includes the basic element of "persuasion." He caused a hearty discussion during the question-and-answer period by expressing a favorable opinion toward multi-level selling, i.e., adroitly going over the purchasing agent's head when necessary.

Charles Walker (Chas. Pfizer & Co.'s general sales manager) also stressed the fundamentals of selling in his talk on salesmanship in the field of fine chemicals. Noting that the vertical integration of the chemical industry has put almost all of the companies into the fine-chemicals field, he pointed out that since products and service are generally equal among competing companies, "the big difference between the volume of business you get and the volume of business your competitors get is almost entirely dependent on you and your ability to get the customer to want to give you the order. . . . You must become the preferred salesman in the territory for which you are responsible."

Uses and Abuses: Morris Pickus, president of The Personnel Institute, and Ollie Minor, New York Division sales manager of the Shell Oil Co., analyzed what it takes to be a successful sales executive or salesman. Pickus, in discussing the development of managers, emphasized that "most of us are born with pint-sized minds—yet we use only a third of what little we have." He felt that the best solution was to learn to think and to read—both of them difficult tasks.

Minor's remarks outlined his "formula" for a successful salesman. Typical is his opinion on the need for courage: "A good salesman must have a fighting heart. He must know that opposition is natural and if it were not for opposition he would not have a selling job."

Two "tools" discussed during the afternoon were chemical advertising and market research. The "Uses and Abuses" of the former were clarified by Joe Twiss, president of the House of J. Hayden Twiss. He attempted to delineate the "line of demarcation where advertising ends and selling begins." His message was that both are essential.

"Chemical advertising could be defined," said he, "as a means of selling the industry as a whole; or making a group sale with a single selling message instead of a single sale actually compounded by the chemical salesman.

"Advertising paves the way to your markets, and if it is well done, the chemical salesman is able to devote more of his time to application selling rather than selling the name of his company."

The final talk, on the uses and abuses of market research, was given

DISTRIBUTION. . . .

by John McPherson, a development manager for the American Cyanamid Co. He stressed the newness of this selling tool, pointing out that it was only twelve years ago that the first chemical market research group was organized. He underlined the differences between this activity and what he calls "the older field of marketing research." Because only an estimated one-third of the market research men in the industry report directly to a sales executive, McPherson emphasized that it is a tool that sales managers must learn to use in its proper place.

Since it is an expensive operation, its limitations, from a sales point of view, must be understood. Market research looks at the commodity picture from an over-all viewpoint, judges growth trends on a long-term basis, and can make no attempt to measure the effectiveness of a sales force or program. For these reasons, its real values lie outside of solving day-to-day sales problems.

First Step: Highly pleased with the response to its first Sales Clinic, the SAACI is confidently planning on more of the same. In addition, other projects are being readied which will accent again that it is an organization devoted to chemical salesmanship as a profession.

Still Dropping

The latest report, for the month of August, shows that industrial chemical exports are still falling off (*see p. 14*).

The August figure was $9.1 million, as calculated by the Department of Commerce. This compares with $9.5 million for the month of July. Comparison with August, 1951, is even more striking, since the latter was a high point of last year's export pattern, having hit a level of $18.1 million.

Other chemical products are generally holding their own. Medicinals other than the antibiotics even accomplished a 10% gain. But all are far below the statistics for last year.

•

Sodium Switch: National Distiller's plan to have its U. S. Industrial Chemicals division handle the sales of all its chemical-process products (*CW, Aug. 16*) is moving ahead. Latest transfer is metallic sodium, made by the National Distillers Chemical Co., at Ashtabula, Ohio. The material, formerly sold only by the Ashtabula office, is now available through any one of USI's eighteen district sales offices. Technical service will also be handled on a national scale in the future.

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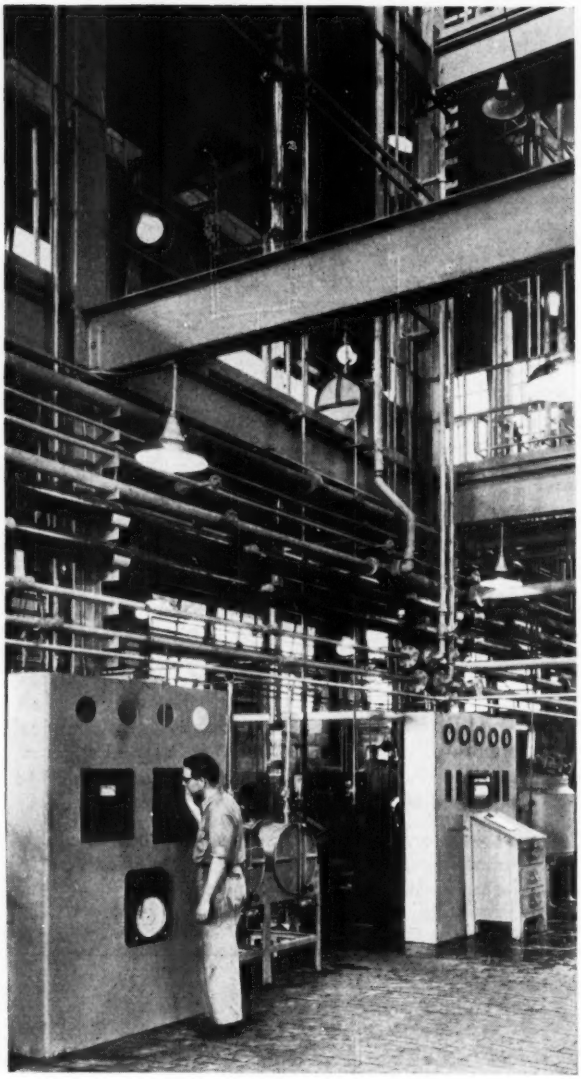

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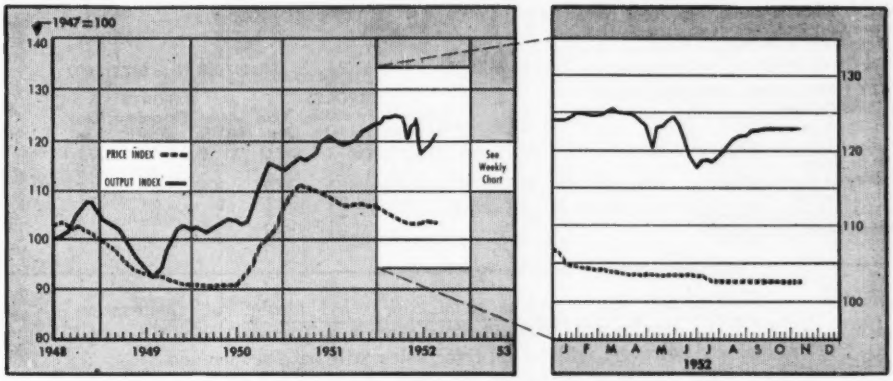


CW Index of Chemical Output—Basis: Total Man Hours Worked in Selected Chemical Industries
CW Price Index—Basis: Weekly Prices of Sixteen Selected Chemicals

MARKET LETTER

Sulfuric acid is sporting a uniform price tag in the New England area this week. Two producers, whose ceiling allows them $22/ton (for 66 degree material), are now meeting the $20/ton figure named by other makers.

Chances for a general reduction in sulfuric prices are slim, however. Reason: Although supplies are good at the moment, there are signs of tightening in some sections of the country, notably in steel producing areas.

Domestic lead prices seem to have skidded to a stop—at least temporarily. But the fact that the current 13½¢/pound schedule is still a rough 1¢/pound higher than foreign metal being offered here, has U.S. sellers leary about predicting the floor has been reached.

Indirect repercussion of lower lead prices is reflected in new reduced lead in oil prices. White lead in oil is now going at 27.9¢/pound, down from 29.75¢: red lead in oil, 30.75¢—a 2.1¢ cut under the previous 32.85¢/pound.

That same pattern is being followed in zinc. The recent slash in slab zinc, to 12½¢/pound (*CW* Market Letter, Nov. 1), is behind the ½¢/pound trimming of lead free zinc oxides prices.

Zinc dust also came under the price hammering with a full 1¢/pound reduction last week. New tag reads 16¢.

Gum naval stores will hit a new low this year. And the wood naval stores industry is in the same doldrums. Reason: A big slump in demand.

Estimates of rosin production from gum this year range from 650 to 680 thousand drums; gum turpentine output is rated at 225-235 thousand barrels.

Prices have remained at or below loan values, says the American Turpentine Farmers Association, and points out there are some 235 thousand drums of rosin and more than 2 million gallons of turpentine in the 1952 agricultural loan program.

MARKET LETTER

WEEKLY BUSINESS INDICATORS	Latest Week	Preceding Week	Year Ago
CHEMICAL WEEK Output Index (1947=100)	122.4	122.4	123.0
CHEMICAL WEEK Wholesale Price Index (1947=100)	102.6	102.6	107.1
Bituminous Coal Production (daily average, 1,000 tons)	358.0	1,387.0	1,510.0
Stock Price Index of 14 Chemical Companies (Standard & Poor's Corp.)	231.3	233.6	230.6
Chemical Process Industries Construction Awards (Eng. News-Record)	$48,788,000	$40,847,000	$32,748,000

MONTHLY INDICATORS—FOREIGN TRADE (Million Dollars)	EXPORTS			IMPORTS		
	Latest Month	Preceding Month	Year Ago	Latest Month	Preceding Month	Year Ago
Chemicals, total	$62.6	$60.3	$91.5	$17.4	$15.1	$27.1
Coal tar products	3.4	3.3	7.1	3.4	3.0	5.0
Medicinals and pharmaceuticals	16.7	16.2	26.5	0.4	0.7	1.7
Industrial Chemicals	9.1	9.5	18.1	0.1	0.4	12.1
Fertilizer and fertilizer materials	3.9	4.1	4.5	8.3	6.6	7.6
Vegetable Oils and Fats, inedible	4.2	3.1	8.3	8.1	8.9	9.1

DuPont will continue producing ethyl alcohol at Deepwater Point, N.J., despite published reports that it will close down its unit. Production, however, will be captive; sales will be discontinued.

The company will meet all contractual obligations between now and the end of the year, assures regular customers a continuing supply for as long as it takes to "complete other satisfactory arrangements."

Latest edition (No. 9) of DPA's bimonthly "List of Basic Materials and Alternates" continues to reflect a rapid easing of chemicals supplies. But although 54 chemicals slip into an easier category—or are removed entirely from the list—increased military demand tags three as "tighter."

The key to the new list: Group I, materials in short supply; Group II, commodities that are in approximate balance with defense and essential civilian demand; Group III, materials in fair to good supply.

Toluene climbs into the "short supply" group from Group III; monochlorotrifluoroethylene (redesignated as polymonochlorotrifluoroethylene) in Group II moves back to Group I. Greater military use also brings glycerine—previously eliminated from the list—back to Group II.

Here are the 54 which show a softening movement:

From Group I to Group III: bisphenol, granular charcoal (included under charcoal), copper chemicals, methylene chloride, selenium compounds (other than those produced from electrolytic copper sludges, which remain in Group I), and—not surprisingly—sulfur.

From Group I to Group II: alkylpolysulfide polymers, cyclohexanol.

From Group II to Group III: charcoal (joining granular), DDT, hydrogen peroxide, sodium chlorate, sodium cyanide, sodium metal, sulfadiazine, sulfathiazole, zinc ammonium chloride, zinc chloride.

Removed from the list: methanol, benzene, butyric acid, cellulose acetate, cellulose butyrate, chloroform, copper-8-hydroxyquinolinolate, diphenylamine, ethanolamines, ethyl cellulose, ethylene dichloride, ethylene glycol, ethylene oxide, Freon (except Freon 22 in Group II), hexylresorcinol, isopropyl alcohol, melamine, melamine resins, methacrylates, methyl bromide, naphthenic acid, nicotinic acid, paradichlorobenzene, phenolic resins, polyester resins, polystyrene, polyvinyls—polyvinyl acetate, polyvinyl alcohol, polyvinyl butyral, polyvinyl chloride, polyvinylidene chloride and copolymer resins, resorcinol resins, urea resins, xylene.

SELECTED CHEMICAL MARKET PRICE CHANGES—Week Ending Nov. 3, 1952

	Change	New Price		Change	New Price
UP					
Cottonseed oil, crude, tks., f.o.b. mills, southeast	$ .00125	$ .14	Soybean oil, crude, tks., f.o.b. mills	$ .0025	$ .11125
DOWN					
Shellac, TN	.01	.27	Zinc dust, pigment grade, c.l.	.01	.16

All prices per pound unless quantity is stated.

LITHIUM IN U. S.

(Thousands of Pounds—in terms of Carbonate)

	Production
1947	654
1948	957
1949	1,562
1950	2,431
1951	3,021
1952	4,000 (est.)
1955	8,500 (est.)

End Use	1951	1955 (est.)
Pharmaceuticals	33	30
Alkaline Storage Batteries	393	610
Air Conditioning & Refrig.	320	1,100
Lubricating Grease	816	3,300
Aluminum Welding & Brazing	287	1,100
Ceramics	779	1,600
Defense & Miscellaneous	393	760
Total	3,021	8,500

Light and Fast

Lithium producers, after a quick run during World War II, are now getting their second wind.

Research, having outstripped raw material development, is transferring attention from products to processing.

By 1955, demand for lithium products could triple today's sales.

For over eighty years after the discovery of lithium (lightest of metals), sales of its compounds had drifted along on mineral water; although still continuing, this use has long since lost commercial significance. Later, invention of the Edison cell storage battery sparked the initial development of the lithium industry in the United States.

Modern Start: First real hints of lithium possibilities acquired meaning during World War II, under the pressure of military exigency and material scarcity; 1944 output, ballooned by special military greases, ceramic parts for engines, airframe alloys, etc., soared to ten times pre-war heights.

But the industry had yet to gear to peacetime conditions; by 1947 output had floated back down to a mere quarter of its top. However, the paths of expansion had been well defined.

For the past several years, product development has increased rapidly; three times as many research papers (over 600) have appeared since 1948 as were published in all the previous literature. As a result, today's demand for lithium products far outstrips supply. The burden of the industry has shifted farther back to (1) development of mineral sources and (2) mineral process research.

The Hurdles: Lithium, like advice, can be picked up almost anywhere. Unfortunately, though, in its natural state it is free neither in form nor in abundance; and therein lie the roots of the production problems.

In this country, practically all the commercially valuable deposits narrow down to three areas: (1) Black Hills, S. D.; (2) Kings Mountain, N. C.; and (3) Searles' Lake, Calif. And, likely for the same reason of scarcity, all these deposits are worked by four primary producers: Lithium Corp., Maywood Chemical, Foote Mineral and American Potash. And even among these select few there has been much scrambling. Foote, for example, recently bought a virtual mountain of spodumene, the principal source, at Kings Mountain. American Potash, again, long a seller of trona concentrates, recently decided to process its own lithium compounds.

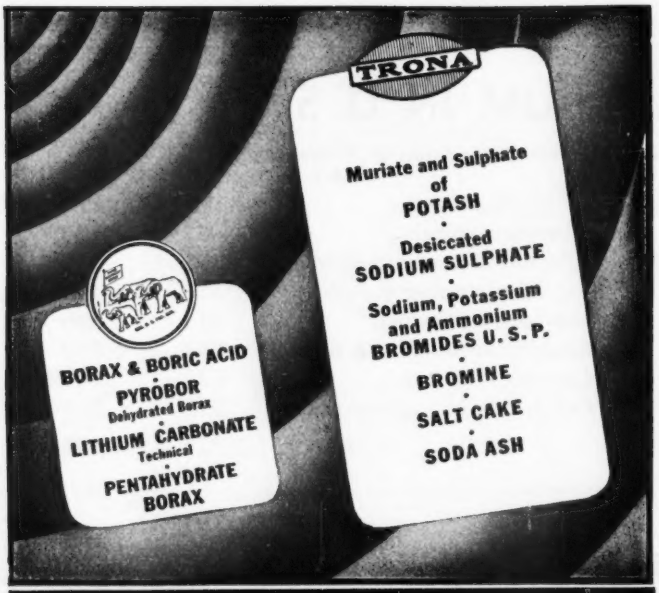
Having a reliable source of material is, of course, all-important. But knowing what to do with it, how to treat it (in the technical sense) ranks a close second. At present the processors have been sparring with a material so active that only after a dozen or so rounds can they extract it from the ore. And even then, the yield from a ton of ore is a paltry ten pounds (figured as lithium metal). In the case of extraction from (Searles' Lake) brine, the starting material contains only 0.02 to 0.03% lithium chloride together with larger amounts of potash, borax, other salts.

Because the processing is so laborious, today's research light is re-focusing, at least temporarily, away from new products, on improved processes. Of all industry facts, information on latest extraction and purification is hardest to come by.

The Rewards: Naturally, there must be a good reason for all the scrambling for sources and processes. The Defense Production Administration, for one, is impressed with the lithium future to the extent of encouraging a 1955 rate goal of 10 million pounds, over triple today's rate; they are allowing tax write-offs as high as 80%.

Industry sights, while distinctly below DPA capacity goals, still aim at some juicy sales plums. Roughly in the order of 1955 value, the line-up stands like this:

- Lubricating grease: Conceived in 1943, this youngster grew slowly for four years, is now rounding out to a fat 2 million pounds this past twelve months. Its wide temperature range and general applicability may lead to cutting 250 old-style grease formulations down to a mere handful. One enthusiastic industry leader foresees a 3 million poundage within the next couple years.
- Aluminum welding and brazing: Now about ten years in commercial use, this application is expected to keep pace with the swiftly expanding aluminum industry. Lithium compounds dissolve the aluminum oxide film barrier, make welding and braz-



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MARKETS . . . . . .

ing possible. Some producers, wooing auto makers, fondly expect a switchover in radiator and other fabricated parts from tight copper to increasingly available aluminum.

• Air conditioning: Already common in commercial units, lithium compounds are expected to answer the problem of household atmosphere dehumidification. This huge field is held back right now by (1) lack of aluminum and stainless; (2) newness of household-size conditioning unit design. Nevertheless, a twofold increase is anticipated within the next three years, much more later.

• Ceramics: Several lithium compounds have already proved themselves to the trade. Their property of reducing enamel firing temperatures makes them much sought after. But right now, and until over-all lithium capacity increases, the ceramics users are probably going to be crying over the short supply.

• Alkaline Storage Cells: Growth rate could accelerate should European auto practice develop here.

Short How Long? To determine when the supply might catch these newly developed markets, CW queried the producers on their expansion plans:

• Most ambitious program is being undertaken by Foote Mineral. Should its $3 million mining and extraction work go as scheduled, it will reportedly double the nation's capacity (now over 3 million pounds in terms of lithium carbonate) by mid-1953.

• Lithium Corp., well-established in the industry, is also straining to satisfy demands for its products. Plans for consolidating present units are expected to increase and improve output. A new flotation unit is designed to expand Lithium Corp.'s ore-refining unit by 50%.

• American Potash, mum on the extent of its plans, is known to be entering the lithium chemical business. As mentioned above, trona concentrates formerly shipped to the other producers are now being processed by American Potash for the lithium yield.

• Maywood Chemical, long in the lithium picture, has lined up sources of both spodumene and trona concentrates. A company spokesman anticipates a long, steady growth based on assured raw material and plenty of know-how.

Adding up the figures, the lithium market race, beset with pitfalls, promises to be at least a two-year run. Beyond that, more product development will conceivably start another round of expansion.

Saves Twenty Times its Cost

"A cost-control program," says General Aniline and Film's Chief Engineer W. Lester Duncan, "is like a New England conscience: It may not keep you from going wrong but it'll sure keep you from enjoying it." And in an interview with CW last week, Duncan outlined how GAF had cultivated a New England conscience, how in so doing it had cut costs by a figure that is roughly equal to 10% of its sales.

There's nothing new or revolutionary about the idea of cost-control plans. Duncan points out that the mechanical industries have used them successfully since the first war. Many chemical companies, too, will say that cost control is an old story to them, will wheel out "yield standards" to prove it.

But Duncan feels that these yield standards are far from adequate in many respects, thinks they are set up too loosely to be of any real value. They may, for example, cover a ten-year period in which both batch gains and batch losses are figured in to give what he calls "a non-descriptive over-all average." With a good cost-control plan, a loss will show up immediately and the exact cause can be pinpointed.

And for two reasons, says Duncan, the chemical industry has lagged behind the mechanical industries in just that type of program. In the first place, operating on a relatively large margin of profit, it has had neither the need nor the incentive. In the second, he feels that it's more difficult to establish such a plan in the chemical industry because standards are harder to set.

Now, however, Duncan sees the chemical industry as being caught in a squeeze "between rising costs and frozen prices." That, plus the fact that competition is getting stiffer all along the line, means that the industry must turn to cost paring; cost-control plans, in particular, are due for a bigger play.

Flying Start: Duncan feels that GAF is ahead of most of the field, for it has had a cost-control plan working since 1947. In that time, Duncan estimates the firm has spent 0.5% of its sales dollar maintaining the program. Savings effected during the same period were twenty times that amount.

These savings, however, were not realized overnight. In fact, the firm actually lost money on the program during the first year and a half of operation. Also, changes in supervisory personnel or other factors occasionally caused a downward trend in the savings curve.

GLEN S. COOK & SON

GAF's DUNCAN: "Conscience" cuts costs.

Essentially, points out Duncan, a cost-control program is designed to allow the supervisor at each level to spot any variation from standard in his operation. Standards are set for every manufacturing variable that can be measured and controlled—like labor, material, overhead expense and utilization of equipment. For example, industrial engineers perform time studies on labor, equipment; chemists figure the yields from raw materials; the accounting department gives figures on past performances.

By weighing and correlating all the data, standards can be established for each job, each operation, each plant. These standards should be set so that good performance will hit 100%, excellent performance will surpass 100%. Moreover, they should be revised promptly whenever there is a significant change in the basis on which they were established.

Then by comparing actual performance—as reported by the accounting department—with the preassigned standard, the supervisor can detect any danger signal, quickly take steps to correct it.

Setting It Up: Other points,* says Duncan, which should be kept in mind when establishing cost controls:

- All elements of costs should be completely integrated so they can be consolidated for each department, plant, division and for the whole company.
- Cost-control procedures should be uniform in basic principle.
- Cost controls should conform with the lines of responsibilities in the organization.
- Responsibility should be assigned only for those elements of cost over which substantial control exists.
- Procedures and reports should be simple, practical and easily understood.
- Performance should be reported regularly and promptly.
- Standards should be related to definite methods, processes and conditions of manufacture wherever possible.
- Individuals with cost responsibility should be assisted by the industrial engineering department and other staff departments in locating losses and taking corrective action.
- Cost-control standards should reflect the over-all policies and objectives of management, but they should also be acceptable to the individual who's being judged.
- The entire program must be "sold" and "resold" to the supervisory group; for its success depends in a large measure on the extent to which those who use it understand its value.

* Duncan has dealt with these at some length in a booklet written for the American Management Association, AMA Manufacturing Series No. 202.

Less Work for Medics

Accidents were far more frequent and people concerned about them were far fewer back in 1912, when 250 delegates gathered in a Milwaukee hotel for the first National Safety Congress.

Last month, when the fortieth Congress and Exposition convened in Chicago, close to 12,000 delegates were scattered among five large hotels. They heard 500 speakers, saw 200 exhibits, congratulated themselves on the progress they've made in cutting down the frequency and severity of industrial accidents.

Thirty-Eight Cousins: Not only the size, but the scope of safety interest has broadened in the twoscore years since the first Congress. That early one was sponsored by electrical engineers in the iron and steel industry; the modern National Safety Council, paterfamilias of safety organizations, oversees some 38 industry divisions, including cement and quarry, chemical, glass and ceramics, metals, mining, petroleum, pulp and paper, rubber and textiles.

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PRODUCTION . . . . . .

After registering and seeing the exhibits at the Conrad Hilton Hotel, chemical safety men repaired to the Sheraton, where they considered such diverse problems as fires and explosions, health and hygiene, maintenance safety, electrical and radiation hazards. The fertilizer sub-group traveled out to Chicago Heights to see how hardened fertilizer can be safely broken up by blasting. Pulp and paper people studied process hazards; rubber men, tank cleaning and repairing.

It All Adds Up: Statistics prove that safety meetings aren't all sound and fury. In the chemical process industries, accident frequency has had its ups and downs—but the trend is happily downward. Taking 1935-39 as 100, the index for 1941 stood at 105. The pressure of war production and the necessity of using untrained workers shot the index up to 111 for both 1943 and 1945. But by 1947 it had declined to 98; it plummeted to 63 in 1949 and slid to 61 last year. The chemical industry figure last year was 5.48 accidents per million man-hours, compared with 9.06 for all industry.*

Accident severity (days lost per 1,000 man-hours) has shown a similar decline. Using 100 as the index for the 1935-39 base period, the figure for 1941 was 107; for 1943, 93; for 1945, 88; for 1947, 76; for 1949, 50; and for last year, a regression to 70. Even so, at 0.85 days lost per 1,000 man-hours, the chemical industry had a better score last year than industry as a whole, with 0.97.

Human Nature is Problem: The industry's record is good—but as long as anyone is injured or disabled, it's not good enough. Safety experts agreed at Chicago that engineers have provided almost the ultimate in mechanical safeguards, but they can't redesign human nature. Negligence on management's part—poor lighting or ventilation, improper guarding of equipment, etc.—still causes a few accidents, but by far the majority can be laid to workers' heedlessness. The big job still to be done: to protect them from themselves.

PROCESSES . . . .

Cold Rendering: A new process for extracting oils and fats from bones, fish and vegetable matter is now being used by British Glues and Chemicals Ltd. in its British and Toronto plants.

Claimed to be faster and to produce better quality fats than current methods based on heat, the Chayen cold rendering process (named for its inventor, I. H. Chayen) employs a novel principle: The material, suspended in a stream of cold water, passes through a vessel where the water is subjected to a series of high-speed and high-frequency mechanical impulses. The water acts on the cellular material like a battery of hydraulic drills, tears it apart. Degreased bone is ready for glue making within 8 minutes from the start of operations.

•

All in One Pipe: Pilot-plant engineers at Heyden Chemical's Garfield, N.J., works have constructed a continuous pipe reactor providing a series of zones each having a different temperature. They simply connected a series of jacketed pipe sections, controlled thermostatically the temperature of the circulating water in each section. Residence time of the reactant at a particular temperature is proportional, of course, to the number of pipe sections comprising the zone.

•

Out with Sulfur: M. W. Kellogg (New York) has licensed Anglo-Iranian Oil's Autofining process, will make it available here.

Autofining is a catalytic desulfurization process which can eliminate 90% of the sulfur in sour middle distillates. Claimed advantages: lower product loss than in the conventional treatment with sulfuric acid—and no waste disposal problem; lower initial investment cost.

EQUIPMENT . . . .

Low-Cost Molecular Still: Priced within the budget of a small industrial or commercial laboratory is a small (average feed: 200 ml. per hour) molecular still made by Asco Mfg. Co. (Webster, N.Y.). It occupies 7 sq. ft. of floor space, weighs under 300 lbs. Temperature can be varied from 40 to 300 C, vacuum from 1 micron to atmospheric pressure, percentage distillate from zero to almost 100%. The unit is sold outright; no royalties are required for processing.

•

Mixed-Bed Exchanger: Penfield Mfg. Co. (Meriden, Conn.) has added to its line a 4,500-grains-capacity mixed-bed demineralizer designed for users of up to 100 gph. of high-purity water. Average operating costs: 15¢ to 30¢ per 1,000 gal. of water (equivalent to triple-distilled).

•

Ceramic Bubble Caps: High-strength ceramic bubble caps are now being made by Coors Porcelain Co. (Golden, Colo.) for general use where metal

* Du Pont's Old Hickory (Tenn.) plant has the best record in the chemical industry—18,360,610 continuous man-hours without a disabling injury. Even at that, two other industries—textiles and communications—have records to top it.

caps are unsatisfactory. The high-alumina type has a tensile strength of 18-20,000 psi., compressive strength over 200,000 psi.

•

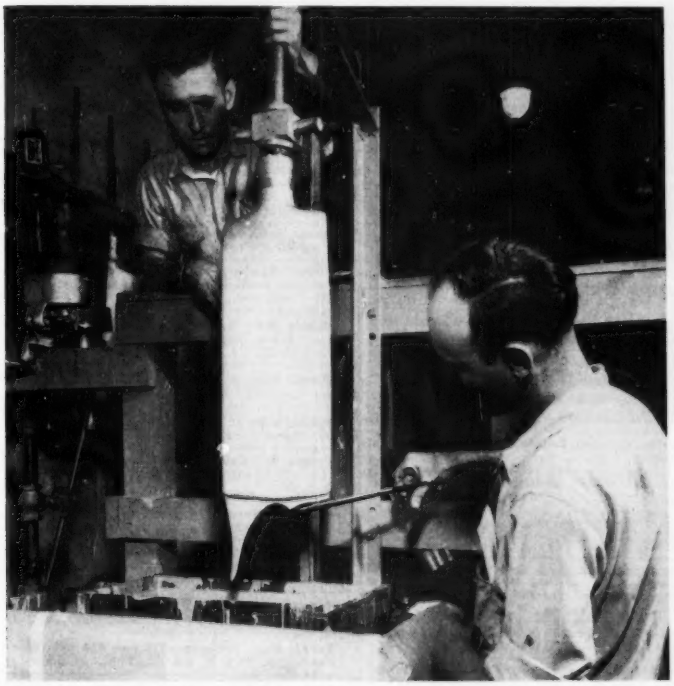
Air-Operated Pump: Ferro Corp. (Cleveland) is now distributing the British-made (Gresham and Craven, Ltd.) Ejectopump, a compressed air-operated displacement pump having no rotating or reciprocating parts, bearings, glands or revolving shafts. They are available in mild steel and other ferrous metals, monel, inconel and stainless steel. They can handle such different liquids as edible fats, fruit pulps (including stones), latex paints, varnishes, lubricating oils and pottery slips.

•

Electrical Equipment: Westinghouse now has available a completely enclosed, non-ventilated dry-type distribution transformer for service on secondary circuits rated 600 v and below. Called type E, it supersedes the type AJR line. They're available from 3 to 50 kva . . . Westinghouse also has a new Lifeline single-reduction gearmotor suitable for side-entry agitators and mixers as well as fans and pumps. Range: 1 to 30 hp, 780 to 420 rpm, AGMA Classes I and II . . . Universal Motor Co. (Oshkosh, Wis.) has a 10 kw stand-by generating plant operated by a four-cylinder air-cooled gasoline engine. It can be supplied with controls that start the plant automatically the instant regular power fails. It's available for single- or three-phase service, at standard or special voltages.

•

Instruments, Controls: A self-balancing Type RI-C indicator-controller made by Industrial Instruments (Cedar Grove, N.J.) measures and controls concentration of solutions by means of its specific conductance . . . A newly designed low-differential flow meter, made by the Hays Corp. (Mich-



Encased in Plastic

PROTECTING Koppers Co.'s Aeromaster cooling-tower fan blades is a cellulose acetate-butyrate plastic coating, applied to the laminated wooden blades by dipping. The coating, called Aeroloid, was developed jointly by Koppers and Tennessee Eastman. Problems licked: chemically modifying the formulation to make the coating fire resistant; developing a primer compatible with both the wood and the coating. The liquid plastic forms a smooth, thick coat that quickly dries to a rubbery film. The blade is thus protected against abrasion, moisture, corrosion and fire.

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EQUIPMENT—used-surplus

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Calender, New 6x12", Johnson Joints, Complete. Eagle Industries, 108 Washington St., NYC.

Centrifugal 36"x40", Bird, Continuous, Consoli- dated Products, 18 Park Row, N.Y. 38, N.Y.

Centrifugal: Tolhurst suspended 26", stainless steel. Loeb Equip. Supply Co., 1927-A W. North Ave., Chicago 22.

Centrifugals, Bird 48"; Rub. Covered. First Ma- chinery, 157 Hudson St., N.Y. 13, N.Y.

Clarifier: Sharples Vapor-Tite, stainless steel. Loeb Equip. Supply Co., 1927-A W. North Ave., Chicago 22.

Drum Driers, Two twin Buflovak Steel drums, 32 x 92 inches. Good condition, complete with flakers, stainless steel hoods, gear drives and motors. To be sold very reasonable by owner. Write FS-5745, Chemical Week.

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Dryers, 2 Blvk 32x90 dble. drum, SS accessories, comp. Eagle Industries, 108 Washington St., NYC.

Dryers, 2 Stainless Drums; 5'x10', First Machinery Corp., 157 Hudson St., N. Y. 13, N. Y.

Evaporator, film type. Also other equipment. FS-5842, Chemical Week.

Filter Press, Cast iron, 18", washington type. Almost new. FS-5838, Chemical Week.

Filter Press, 18" x 18", Sperry, Iron, P & F, 11 chambers (20) Consolidated Products, 18 Park Row, N.Y. 38.

Filter Press, 30"x30", Iron, Sperry, steam heated, 30 chambers. Consolidated Products, 18 Park Row, N.Y. 38, N.Y. Barclay 7-0600.

Filter Press, 42" x 42", Iron, Shriver, 18, 27, 36, 54 Chambers (12). Consolidated Products, 18 Park Row, N.Y. 38.

Filter Press, 30" x 30", Aluminum, 45 Chambers, Consolidated Products, 18 Park Row, N.Y. 38.

Filter—Sparkler SS model 33-D-17. Equipment Clearing House, 285 10 St., Bklyn 15.

Filters, all sizes and types. Perry Equipment, 1415 N. 6th St., Phila. 22, Pa.

Labeler, World Model CH, press type, very good cond. Process Industries, 305 Powell St., Brooklyn 12, N.Y.

Mill New 6x12; Johnson Joints, Complete. Eagle Industries, 108 Washington St., NYC.

Mills, Raymond #5047, High Side Roller, (2). Consolidated Prods., 18 Park Row, N.Y. 38.

Mills, Traylor tube, 5'x22", 5'x20', 4'6"x18'6", 4'x13', stone lined, pebble charge (4). Consolidated Products, 18 Park Row, N.Y. 38, N.Y.

Mixers, 700 gal. Turbo, Simplex, Jktd. (2). Consolidated Products, 18 Park Row, N.Y. 38.

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Pebble Mill: Hardinge 5'x36" buhrstone lined. Loeb Equip. Supply Co., 1927-A W. North Ave., Chicago 22.

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BOOKLETS . . . . . .

Chemicals

Organic Silicofluorides

Four data sheets on commercially produced organic silicofluorides including methylamine, dibutylamine, ethylhexylamine, aniline, "rosin amine," and morpholine silicofluorides. Properties, uses, and other data are included. These compounds have potential uses as insecticides, fungicides, mildewcides, mothproofing agents, and rubber accelerators. Technical Service Department, The Davison Chemical Corp., Baltimore 3, Md.

Surface Active Agents

12-p. catalog lists anionic, cationic, and non-ionic agents and supplies data on physical and chemical properties, concentrations, general applications and specific suggested uses. Especially of interest wherever wetting, foaming, dispersing, emulsifying, penetrating or detergent action is of value. Industrial Division, Onyx Oil and Chemical Co., 190 Warren St., Jersey City 2, N.J.

Equipment

Vacuum Filters

8-p. bulletin describes and illustrates line of ceramic vacuum filters. Photographs, technical data, drawings, and dimensional information are useful to users of porcelain or chemical stoneware vacuum filters. Request bulletin No. 37, The U.S. Stoneware Co., Akron 9, O.

Laboratory Apparatus

14-p. booklet covers three specialized pieces of laboratory apparatus, Kjeldahl nitrogen apparatus for the determination of protein, Goldfisch fat extraction apparatus and crude fiber condensers. Fifteen laboratory photographs and information of interest to those concerned with these determinations are included. Laboratory Construction Co., 1115 Holmes St., Kansas City 6, Mo.

Dehydrators

12-p. bulletin describes the need for dehydration and the extent to which gas or air can be dried, practicably, together with the operation of specified equipment. Three series of dehydrators are fully specified as to capacities and physical dimensions. A nomograph is provided for preliminary determinations of appropriate equipment. A separate data sheet with spaces for more specific operating information is included for mailing to the manufacturer for more precise equipment recommendations. Selas Corp. of America, Philadelphia 34, Pa.

Equipment and Services

42-p. catalog describes services and products of Baroid Sales Division. Special section on mud testing equipment includes descriptions of parts and accessories of various units. Well logging service and equipment are also discussed. Baroid Sales Division, National Lead Co., P.O. Box 1675, Houston 1, Tex.

Oxygen-Nitrogen Generators

12-p. booklet discusses tonnage oxygen-nitrogen generators, high-purity oxygen-nitrogen generators, and other low-temperature process equipment. Typical uses, capacities, operating features, and capabilities are described. Complete with illustrations and charts. Request catalog 52, Air Products Inc., P.O. Box 538, Allentown, Pa.

Corrosion Inhibitors

8-p. technical bulletin is a general primer of VCI and "VPI" corrosion inhibitors. Among the subjects covered by questions and answers are: definitions of VCI, "VPI" and VIP; proper and improper applications; "bugs" to guard against; VCI as a control for fingerprint corrosion; toxicity; galvanic action; reactions with non-ferrous metals and non-metals; effects of moisture and condensation; shelf life and package life; plus other basic data. Request technical bulletin VT-1, Industrial Packaging Division, Berlin and Jones Co., Inc., 601 West 26th St., New York 1, N.Y.

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She's looking through someone else's eyes

Few purchases are made without thought of how they will be judged by others.

Men who order more than 85 per cent of all Multiwall bags are well aware of this. They rate* a good impression high on their purchasing check list. This, of course, includes a good printing impression.

When your Multiwall bag puts its best foot forward visually, you take a long step toward both winning and holding your customer.

The *use* of what you sell, and the *re-orders* you receive, *inevitably* are influenced by your bag — how it looks, how easy it is to read, how easy it is to remember.

Most often, the best-dressed Multiwalls are Union Multiwalls. This is one of many good reasons why the biggest users of Multiwalls today look to Union for a greater proportion of their needs than at any other time.

More so every day . . .

IT'S UNION FOR MULTIWALLS

TRADE MARK UNION

*August, 1951 research study.

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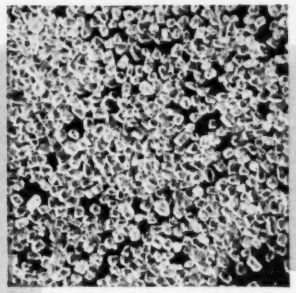


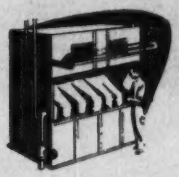
Photo of General Chemical's Superior New Large Crystal Oxalic Acid; Slightly Enlarged.

CLEANERS—For auto radiator cleaners. For cleaning rust from railroad cars and buses.

LEATHER & FURS—Vegetable tanning of sole and upper leathers; also bleaching of furs.

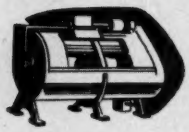
TEXTILES—For removing rust stains. In development of color when printing. For removing soil or smears after aniline black printing.

If you need
Large or Fine Crystal
OXALIC ACID
For These or Other Uses
Call on
General Chemical



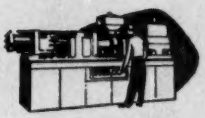
DYES—In dye manufacture.

PENTAERYTHRITOL—In manufacture of pentaerythritol which is used in making surface coating resins and explosives.



LAUNDRIES—For laundry sours and rust removers.

DRUGS—For manufacturing pharmaceuticals, antibiotics.



PLASTICS—As a polymerization catalyst or decoloring agent.

CHEMICALS—For manufacturing oxalates and other chemicals.

Whether you require Oxalic Acid in a large crystal form for manufacture of auto radiator cleaners . . . or a fine crystal material for exacting process uses . . . General Chemical can "fill the bill."

Long recognized for its consistently high purity, General's Oxalic Acid is a clear, colorless crystalline product which assays a minimum of 99.5% $C_2H_2O_4 \cdot 2H_2O$. It is now produced in large and fine crystal forms to meet every requirement.

If you use Oxalic Acid and have never tried General's product, do so now. Learn why so many users always specify "General Chemical" whenever they order. For samples and further information, call the nearest company office listed below.

BASIC CHEMICALS

GC

FOR AMERICAN INDUSTRY

Available in convenient, easy-to-handle 100-lb. bags; also 400-lb. fibre drums.

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